HUMAN TECHNOPOLE

INTEGRATED REPORT 2024

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GRI

Letter to stakeholders

Dear Stakeholders,

The past year has a special value for the Human Technopole Foundation. In fact, 2024 marks the starting point of our 2024-2028 Strategic Plan, which aims to pursue the path of excellence in research and scientific education, to launch the Foundation's role as a technology hub supporting the national scientific community through national facilities, and to begin to enhance research through technology transfer. We are therefore pleased to share our most significant achievements with you, both with regard to our scientific, support and infrastructural activities.

As far as scientific activities are concerned, the contribution of our scientists, who have now reached a total of 300 people distributed across 25 research groups, has been fundamental to date. They have strongly contributed to the Foundation's scientific accreditation with their studies, which have also been recognised by some 200 publications in the most prestigious scientific journals. Further recognition has been given to our research projects, which have also received important funding in the international arena.

With regard to the National Facilities, no less than 38 projects presented by national scientific institutions have been launched in our laboratories, entirely funded by the Foundation and selected by an independent evaluation commission of international experts who judged them on the basis of criteria of excellence.

In this regard, we would like to underline our many new collaborations with various national and international scientific institutions, which confirm the Foundation's effort towards achieving the goal of becoming one of the most prestigious research institutes for scientific excellence and knowledge sharing, as an engine for the systemic development of research.

All these achievements are consistent with our founding values and the value of distinct 'open' innovation that we want the Foundation to stand out for.

In this sense, the scientific successes mentioned above do not exhaust our achievements, but are complemented and, in some respects, made possible, by the results achieved in support and governance activities. These include the expansion of the technological and logistical infrastructure of our campus, as well as the launch of the digitisation programme, the latter aimed at improving internal processes.

Our efforts toward innovation have also been rewarded through the prestigious recognition obtained by our Integrated Report, which won the Oscar di Bilancio 2024 Award in the section reserved for 'Non-Profit Entities'.

This achievement reinforces our awareness of the importance of a transparent and goal-sharing relationship with our stakeholders, and encourages us in our efforts to continuously improve our sustainability reporting.

In this regard, this edition of our Integrated Report, which you are about to read, incorporates several innovative elements.

In the document, you will find enriched information content, particularly in the chapter on 'our approach to value creation'. In that section, the ESG materiality assessment is expanded, integrating impact materiality with financial materiality, thus highlighting the risks and opportunities arising from the external context, which influence the Foundation's financial and economic dynamics (double materiality).

Another aspect to be emphasised is certainly a deeper discussion of our priorities with respect to the strategic objectives and material ESG issues of our stakeholders. The document places significant emphasis on the relationship with our stakeholders, through the representation of materiality matrices for each category. We consider this an important step to better target our sustainability policies, through the definition of a timely operational plan that is closer to their interests.

Lastly, we would like to reiterate the Foundation's constant commitment to a virtuous growth path, enabling us to pursue our objectives in the long term and inspired by the values in which we believe: excellence and sharing. This is what means for us to create shared value with other scientific partners and the community at large.

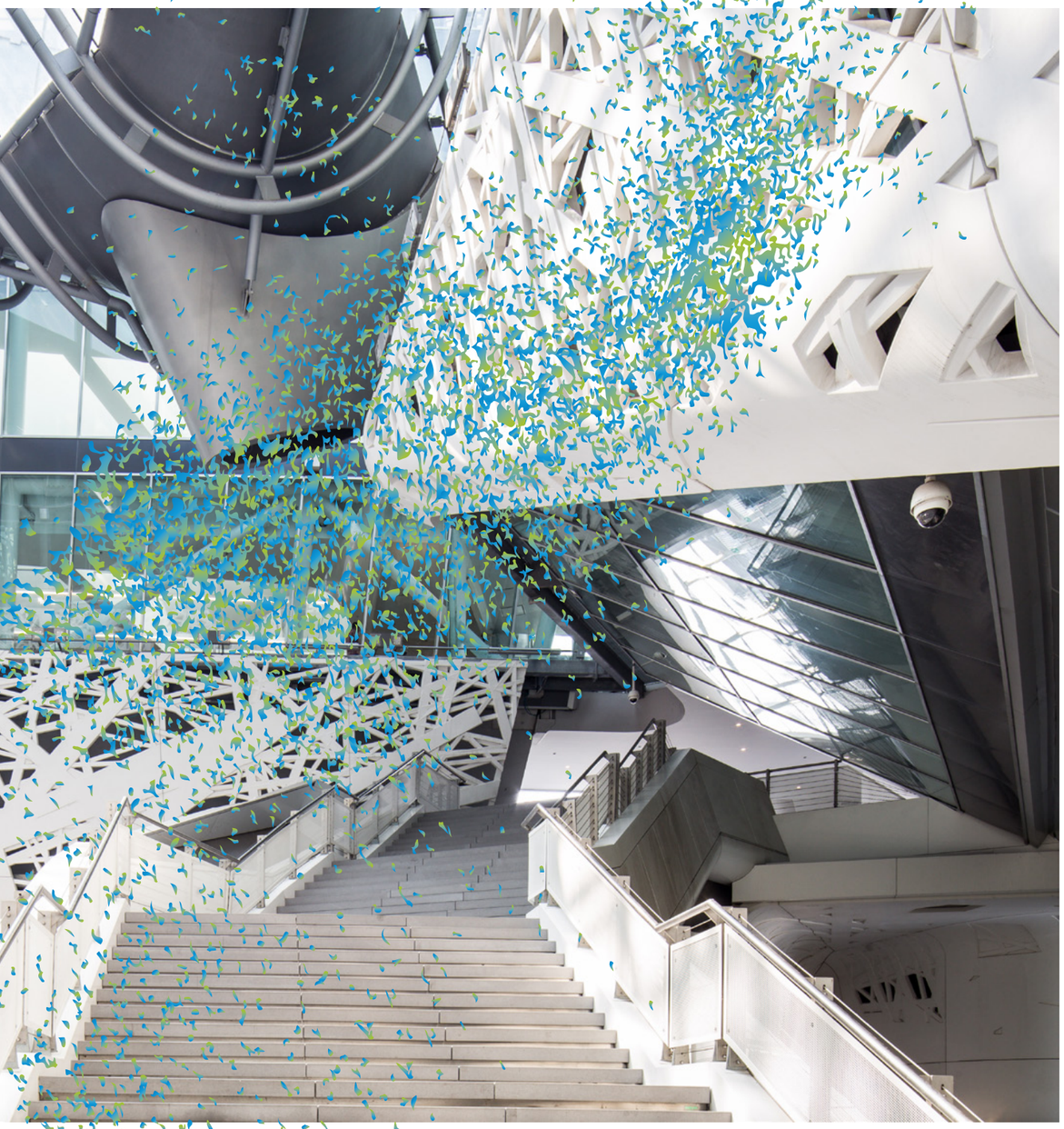
We wish you a pleasant read.

Prof. Gianmario Verona
President

Prof. Marino Zerial
Director

GRI

Methodology note



The Integrated Report is an essential information tool that describes how the Human Technopole Foundation (or HT) creates both short- and long-term sustainable value. This document represents, analyses and assesses the resources used by HT to achieve its strategic objectives. In addition to being the result of an organisational and cultural process aimed at extending traditional financial reporting, the Integrated Report facilitates the coordination of internal departments in collecting and organising the information needed for decision-making purposes. This integrated approach promotes a culture of transparency and accountability, improving the effectiveness of decisions and contributing to the creation of sustainable value. Collecting and organising the information needed for the report ensures that all decisions are based on accurate and up-to-date data, enabling HT to respond more effectively to any challenges and opportunities. The Integrated Report mirrors HT's commitment to the sustainable and responsible management of its resources, enhancing transparency and accountability and contributing to HT's long-term success. Furthermore, the document reveals how economic, social and environmental sustainability is integrated into the decision-making processes, strategy and governance of the Human Technopole Foundation. This is done through direct and indirect interactions with stakeholders and their engagement. Finally, the Integrated Report addresses the need to make HT's responsible and sustainable growth path transparent, highlighting its organisational behaviour, strategic and operating practices.

The Human Technopole Foundation has now reached the fifth edition of its Integrated Report, and since the 2024 financial year, HT's approach to integrated and sustainability reporting has undergone a major development with the introduction of the principle of double materiality, as required by the Corporate Sustainability Reporting Directive (CSRD). This change represents a significant step towards more comprehensive and transparent reporting, which not only considers the impact of HT's activities on the environment and society, but also how sustainability issues affect its financial and operational performance.

In the years 2022 and 2023, the materiality matrix was structured in accordance with the guidelines of the Global Reporting Initiative (GRI) 3: Material Topics 2021. This approach focused exclusively on Impact Materiality, i.e. the identification and management of the significant impacts that HT's activities could have on the economy, the environment and people. The materiality matrix was therefore built with an 'Impact Materiality' perspective, focusing on the effects generated by the organisation externally.

Starting in 2024, HT voluntarily carried out its first double materiality assessment in accordance with the European Sustainability Reporting Standards (ESRS).

Compared to what is required by the GRI reporting framework, this new approach requires considering not only the relevant impacts generated by the organisation externally (the 'Impact Materiality' perspective), but also the risks and opportunities that can or might affect the company's cash flows, balance sheet and economic results in the short, medium and long term (the 'Financial Materiality' perspective).

In December 2023, HT approved a new Strategic Plan for the period 2024-2028, which is discussed in sub-chapter 2.3 'Strategy'. It should therefore be noted that this Integrated Report is linked to the newly approved Strategic Plan, in the declination of the strategic objectives, the value creation model and the performance indicators.

Looking to the future and with a view to our ongoing commitment to increasingly transparent sustainability reporting aligned with European law, HT will, in the near future, embark on a path for its transition from the Global Reporting Initiative (GRI) Standards to the European Sustainability Reporting Standards (ESRS). This transition, albeit voluntary, will lead to the concrete application of the new Standards starting in the financial year 2027, with reference to the 2026 financial statements, with the aim of representing a best practice for the industry.

REPORTING GUIDELINES AND PROCESS

This Integrated Report is in accordance with the provisions of the IIRC (International Integrated Reporting Council - Integrated Reporting) Framework and with GRI Standards: **'in accordance'** option (GRI - Home (globalreporting.org).

As in previous editions, some performance indicators not included in the GRI Standards have also been used. These indicators have been chosen with a twofold objective: on the one hand, to effectively represent the link with the 4 strategic objectives set out by the Human Technopole Foundation in its new Strategic Plan; on the other, to monitor the extent to which these objectives are achieved. This approach provides a more complete and accurate representation of HT's performance, whilst ensuring continuous and detailed monitoring of progress towards its strategic goals.

Although this obligation is not laid down by Corporate Sustainability Reporting Directive (CSRD), HT's Integrated Report pays particular attention to the issues and areas covered by this legislation. The issues are widely discussed in the reporting of accurate information and the many initiatives implemented through specific company policies and processes. This approach ensures a more responsible and transparent management of HT's activities, in accordance with current European sustainability regulations.

HT pays special attention to sustainability issues and, as early as 2022, it established a committee within the Supervisory Board, called the 'Sustainability Committee'. This committee has advisory functions in connection with ESG (Environmental, Social, and Governance) issues.

With reference to social sustainability, as early as 2022, HT approved the Gender Equality Plan (GEP). This policy document outlines a series of actions and measures that engage HT on gender equality issues. The plan responds to the guidelines of the European Institute for Gender Equality (EIGE) aimed at identifying and implementing innovative strategies to promote cultural change and equal opportunities in universities and research centres. The implementation of the GEP is entrusted to the Gender Equality Team (GET), a coordination group that monitors and supports the implementation of the measures laid down in the plan.

For details of the activities carried out by the GET, please refer to sub-chapter 2.4.13 '*Diversity, inclusion and human rights'*.

Special attention is also paid to environmental and social issues through the adoption of regulations aimed at environmental protection, compliance with the principles of legality and transparency, promotion of equality, inclusion and combating any form of discrimination.

In order to produce the Integrated Report, an engagement process was implemented with the active participation of both organisational administrative and research support areas, as well as scientific groups. In particular, the reporting process was based on the information systems in place at the Human Technopole Foundation, integrated with specific data collection and analysis tools. The data were processed mainly by extraction from management software and careful calculations, and estimates were used for the reporting of specific information received. Research Centre and Facility staff were directly involved with regard to some content of the Integrated Report, such as information on research areas or facilities.

As regards the construction process for the Integrated Report, HT's goal remains to further strengthen and structure the information system by integrating the management systems currently used by the various scientific and administrative departments with an integrated system equipped with business intelligence applications to ensure transparent and fully digitised management of financial, documentary and operating records. As mentioned earlier, following on from the document structure used in previous years, the Integrated Report is in accordance with the IIRC framework.

Adequate information is given concerning HT's governance structure, strategy, practices and key policies in place along the entire value creation chain, as well as details of stakeholder engagement performed by the Human Technopole Foundation. The capitals (financial, infrastructural, intellectual, human and relational) forming the resources available to HT and used to achieve its strategic objectives are described in detail. In addition, special attention is paid to HT's value creation model by illustrating the main activities carried out and their connection with the above-mentioned strategic objectives.

In addition, extensive coverage is given to the links between HT's strategic goals and UN Agenda 2030 sustainable development goals. In particular, with reference to the Sustainable Development Goals, HT has initiated the process of determining double materiality, which considers both the impacts on the environment, people and the economy, and the financial risks and opportunities arising from ESG issues. For details of this process, please refer to sub-chapter 2.1 'Stakeholder engagement and the materiality matrix'.

With a view to the future, all risks and opportunities arising from both the internal and external environment were analysed, with particular attention to ESG risks arising from the double materiality assessment. These include environmental, social and governance risks that can affect HT's financial performance and reputation. The results of this analysis are presented in sub-chapter 3.1 'Risks and Opportunities' of this document.

Finally, a section of the document is dedicated to HT's financial performance as appropriately reported in the financial statements for the year ending 31 December 2024 and approved on 23 April 2025.

With reference to the reporting principles used, the following information is given for the sake of completeness:

PRINCIPLES FOR DEFINING THE CONTENTS OF THE INTEGRATED REPORT	APPLICATION METHODS
ACCURACY	HT reports qualitative information consistently with available evidence, providing details on data measurements and bases for calculations. Furthermore, HT is committed to ensuring that the margin of error in measurements does not affect stakeholder assessment, by clearly indicating when data are estimates. This approach ensures utmost transparency and reliability of the information reported, allowing stakeholders to have a clear and precise view of the Human Technopole Foundation's performance
BALANCE	HT reports information objectively, providing a balanced representation of both negative and positive impacts. The Human Technopole Foundation avoids omitting material information on negative impacts and does not overemphasise news or positive impacts. This approach ensures complete transparency and an accurate assessment of performance, allowing stakeholders to have a clear and unbiased view of HT's activities
CLARITY	HT reports information in a clear and comprehensible manner, using graphs and tables to make data accessible to all. The Human Technopole Foundation presents information in such a way that it can be easily understood by users with a reasonable knowledge of HT's activities. This approach ensures that information is usable and transparent, facilitating an accurate understanding of the Human Technopole Foundation's performance and initiatives
COMPARABILITY	HT reports information in a consistent manner to enable an analysis of changes in its impacts over time and an analysis of these impacts compared with those of other organisations. Where available, the Technopole Foundation also presents information from the previous periods, maintaining consistency both in the methods used to measure and calculate data and in explaining the methods and assumptions used. This approach ensures continuity and comparability of information, facilitating an accurate and transparent assessment of HT's performance over time
COMPLETENESS	HT reports all material aspects arising from the materiality assessment and evaluates them on the basis of their impact boundaries. ESG impacts are reported on the basis of previously determined materiality levels, details of which can be found in sub-chapter 2.1 of this document
SUSTAINABILITY CONTEXT	HT reports corporate non-financial and sustainability performance considering the context in which it operates and the applicable standards and regulatory references such as SDGs, GRI Standards and the new CSRD (for double materiality). HT performs an annual materiality assessment aimed at identifying the most impactful topics for both HT and its stakeholders through engagement activities. Impact assessment has been extended by adopting the principle of double materiality, which considers both the impacts on the environment, people and the economy, and the financial risks and opportunities arising from ESG issues
PROMPTNESS	HT clearly specifies the time period covered by the reported information, ensuring consistency in the length of reporting periods. The Human Technopole Foundation regularly publishes information immediately after the close of the reporting period, ensuring timeliness and continuity in reporting corporate performance
VERIFIABILITY	HT collects, records and analyses data in such a way as to ensure that the information can be verified and are of high quality. The Integrated Report is voluntarily subjected to an external assurance process by an auditing company, thus ensuring the accuracy and reliability of the information reported. This approach strengthens the credibility of the report and stakeholder confidence in the data presented.

There have been no significant changes in the reporting scope compared to previous issues of the Integrated Report. In addition to confirming the performance indicators of previous editions, new KPIs that are representative of the activities carried out by HT have been added. With the new Strategic Plan, the previous indicators have been reassigned to the objectives arising from the new plan, thus ensuring continuity and consistency in performance measurement.

The elements of the Integrated Report 2024 prepared in accordance with the GRIs have been audited by a specially appointed auditing company. The reference standard used to certify the document is the International Standard on Assurance Engagements 3000 (Revised) - Assurance Engagements Other than Audits or Reviews of Historical Financial Information (hereinafter also 'ISAE 3000 Revised'), issued by the International Auditing and Assurance Standards Board (IAASB).

STRUCTURE AND CONTENT

The Integrated Report 2024 is structured according to the International Integrated Reporting Council (IIRC) framework and contains the following sections:

1. ABOUT US

2. OUR APPROACH TO VALUE CREATION

3. OUR EXPECTATIONS FOR THE FUTURE

4. PERFORMANCE ANALYSIS

5. FINANCIAL STATEMENTS

REPORTING PERIOD

The information contained in this Integrated Report refers to the period 01/01/2024 - 31/12/2024. However, the document also includes references to activities that took place in early 2025. Furthermore, the reported data are compared with those of the previous period to ensure a comprehensive and comparative view of performance.

GRI STANDARDS

Where possible, sustainability information is reported in accordance with GRI Standards: 'in accordance' option, and duly identified with the relevant reference number entered at the beginning of each chapter in which the relevant information is reported. With regard to Foundations and General Disclosures, the provisions of GRI 1 and GR 2, effective for reports published on or after 1 January 2023, are taken into account.

By adopting the principle of double materiality, HT has expanded the analysis of material issues to include both impacts on the environment, people and the economy, and the financial risks and opportunities arising from ESG issues. This approach, in line with the Corporate Sustainability Reporting Directive (CSRD), ensures a more comprehensive and integrated assessment of HT's sustainability performance.

CAPITALS

As previously mentioned, HT creates value over time by using the resources represented by the following five 'capitals':

Financial, i.e. the financial resources secured by public and private funds, which HT uses to carry out its activities and achieve its strategic objectives;

Infrastructural, i.e. owned or leased real estate, facilities, infrastructure, machinery and scientific equipment available to HT and the scientific community;

Intellectual, i.e. the scientific know-how, operational processes and procedures used by HT to ensure the quality of its activities and promote innovation;

Human, .e. the intangible assets made up of the skills, abilities and experience of scientific and administrative staff, which contribute to the success and growth of the Human Technopole Foundation;

Relational, i.e. the relationships with key stakeholders and partnerships with other scientific institutes or universities.

STRATEGIC OBJECTIVES

The following table illustrates the four pillars of the HT strategy, represented by specific symbols:

Promoting research focusing on the fundamental mechanisms underlying human biology, which are relevant to people's health and well-being

Supporting research by providing technologies to the Italian scientific community through shared research infrastructures, the National Facilities

Offering advanced scientific training to the Italian scientific community

Enabling the exploitation of the results of research and technological innovation through technology transfer

In addition to its 4 main strategic objectives, the Human Technopole Foundation is committed to pursuing further ancillary and crosscutting objectives that enrich its strategic approach in carrying out its activities. These objectives include:

Scientific Reputation: strengthening HT's credibility and authority by publishing groundbreaking research, participating in international conferences or being awarded prizes of scientific significance

Partnerships and Collaborations: establishing and maintaining strong relationships with academic institutions, research institutes, government agencies and industry to promote joint projects and exchange scientific knowledge

Sustainability: implementing sustainable practices in all HT operations, reducing the environmental impact and promoting social responsibility

Effectiveness and efficiency of processes: optimising internal processes to ensure efficient use of resources and improve the quality of results

SUSTAINABLE DEVELOPMENT GOALS (SDGs)

HT's strategy is inspired by the sustainable development goals of UN Agenda 2030.

The UN goals that are most relevant to HT activities have been matched with its strategic objectives, highlighting their specific relationships and interconnections. In addition, the actual and potential impacts of HT's strategic activities on the environment, the economy and people have been identified and analysed. These impacts, summarised into 13 ESG material topics, have been assessed according to their level of materiality, determined also through stakeholder engagement to establish their priority.

The table below lists the 14 Sustainable Development Goals (SDGs) to which HT can contribute the most:

Good health and well-being

Quality education

Gender equality

Clean water and sanitation

Affordable and clean energy

Decent work and economic growth

Industry, innovation and infrastructure

Reduced inequalities

Sustainable cities and communities

Responsible consumption and production

Climate action

Life and land

Peace, justice and strong institution

Partnership for the goals

The table below shows the 13 material ESG topics summarising the actual and potential impacts on the environment, people and the economy, as defined in the materiality assessment:

PROGRESS AND INNOVATION IN SCIENTIFIC RESEARCH
SUSTAINABLE ECOSYSTEM
HEALTH AND SAFETY
INFRASTRUCTURE MANAGEMENT
INTEGRITY AND RESPONSIBILITY
INTERACTION WITH THE NATIONAL SCIENTIFIC COMMUNITY
CYBERSECURITY
EFFECTIVE WASTE MANAGEMENT
ENERGY EFFICIENCY AND RESPONSIBLE CONSUMPTION
RESPONSIBLE SUPPLY CHAIN MANAGEMENT
WELFARE
TALENT DEVELOPMENT
DIVERSITY, INCLUSION AND HUMAN RIGHTS

REFERENCES

For comments, requests, opinions and suggestions for improvement on HT's sustainability activities and the information contained in this Integrated Report, please contact HT's Finance team by sending an email to: ht-dept-finance@fht.org

01 ABOUT US

Human Technopole is the institute for life science research located in the heart of MIND – Milan Innovation District.

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GRI

1.1 Mission, vision and values

HT is an Italian research institute specialising in life sciences. With its interdisciplinary approach, it promotes innovation in the health sector with the aim of improving people's well-being.

HT is an Italian research institute specialising in life sciences. With its interdisciplinary approach, it promotes innovation in the health sector with the aim of improving people's well-being.

After representing and celebrating Italian excellence during EXPO 2015, the Italian Government decided to take up the legacy of the universal exhibition by creating an open research centre aimed at stimulating collaboration and bringing added value to the national and international scientific research ecosystem. 'Palazzo Italia', the former Italian pavilion at EXPO 2015, was completely renovated and redesigned, becoming HT's institutional headquarters.

HT was established under Law No. 232 of 11 December 2016, with the aim of implementing a project based on the creation of a multidisciplinary, nationally significant, integrated scientific and research centre in the fields of healthcare, genomics and data and decision sciences. The founding partners of HT are the **Ministry of Economy and Finance**, the **Ministry of Health** and **the Ministry of University and Research**, which also take care of supervising it.

HT's mission was later further extended by Art. 1, paragraphs 275-277 of Law No. 160 of 27 December 2019, which also assigned HT the function of an infrastructural scientific hub supporting national scientific research. This function is performed by adopting a multidisciplinary and integrated approach, respecting the principles of full accessibility for the national scientific community, transparency and publicity of activities, and verifiability of scientific results achieved, in accordance with international best practices. In order to implement such regulatory addition, HT signed a Convention with the founding Ministries on 30 December 2020 for the realisation, management and enhancement of the so-called 'National Facilities'. Such facilities are high-tech facilities made available to the national scientific community to conduct high quality research.

In addition, in 2020 HT was entrusted by the Government (Law 77 of 17 July 2020) with the mission of establishing a 'Centre for Innovation and Technology Transfer in Life Sciences' with the aim of fostering innovative processes proposed by public and private entities from the research and innovation system.

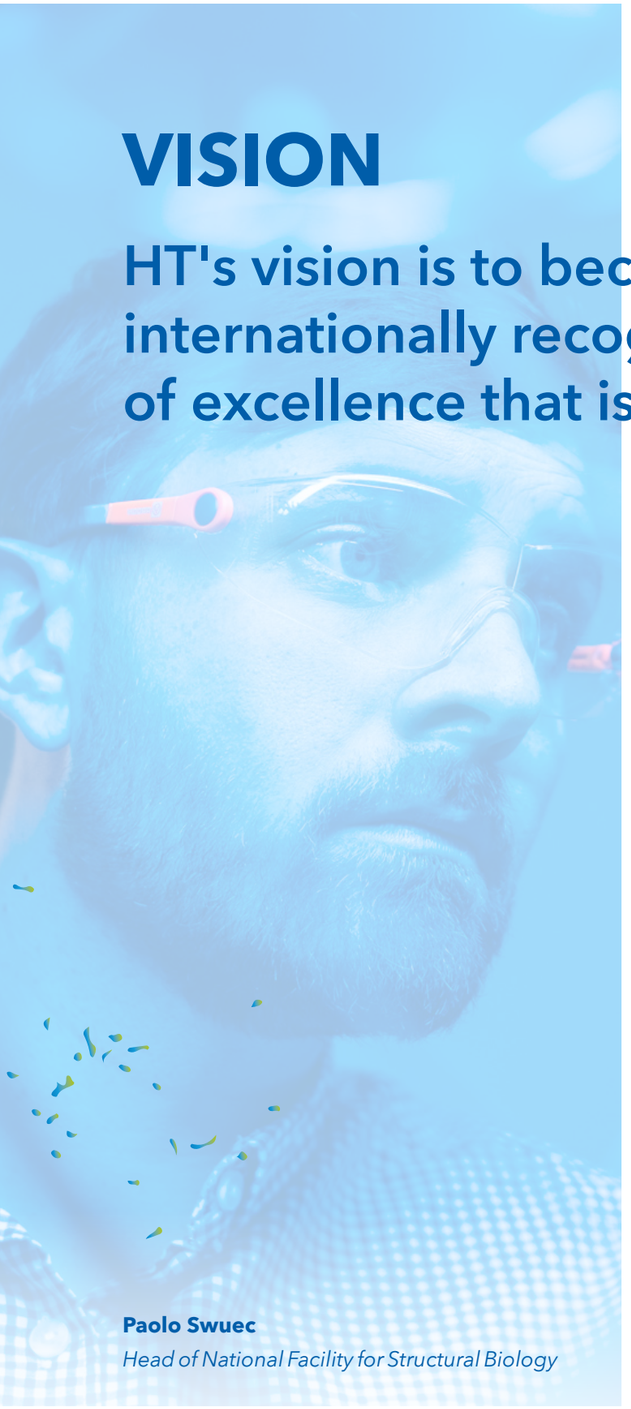
Finally, with Official Journal No. 234 of 30 September 2021, HT was recognised as an institutional unit of the public administrations included in the consolidated economic account (ISTAT list) identified pursuant to Article 1, paragraph 3, of Law No. 196 of 31 December 2009, as amended (Accounting and Public Finance Act).

MISSION

HT's mission is to carry out research programmes and develop technologies to improve human life.

To achieve this mission, HT pursues four main objectives:

1. **Promoting** cutting-edge fundamental research on human biology and health;
2. **Providing** shared research infrastructure to the national scientific community;
3. **Offering** advanced scientific training to scientists;
4. **Exploiting** the results of research and technological innovation through technology transfer.



VISION

HT's vision is to become an increasingly internationally recognised centre of excellence that is able to:

- Promote an institutional culture based on scientific excellence and integrity, together with core values such as transparency, inclusion, openness and collaboration among HT staff and in synergy with the wider research community;
- Exercise significant influence and contribute to health policy-making, leveraging the wealth of knowledge generated by cutting-edge research to inform and contribute to public health agendas;
- Support the importance of basic research among citizens, enabling them to appreciate the contribution and necessity of scientific research as a prerequisite for improving public health.

This synergetic combination of innovative research, shared infrastructure, high-level training and technology transfer aims to create a long-lasting impact on the health and well-being of society.

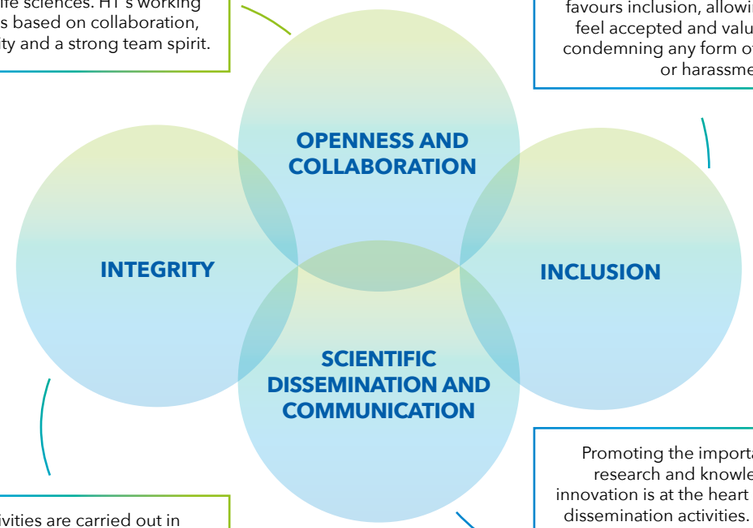
Paolo Swuec
Head of National Facility for Structural Biology

VALUES

With its scientific activities, HT actively promotes open innovation and research integrity, applying the rules of good scientific practice. It widely shares its results, data and software, establishing a culture of honesty, transparency and openness in the planning and conduct of research, data management and analysis, and scientific communication. In general, in carrying out all its activities, both internally and externally, HT strives to promote a culture of research and innovation based on a set of core values.

All HT's activities are pursued in an open and collaborative manner, involving academics, clinicians, industry and other stakeholders to promote research and innovation in life sciences. HT's working environment is based on collaboration, interdisciplinarity and a strong team spirit.

HT supports and protects diversity by fostering equity between all genders, ethnicities and cultures. By promoting equality and integrating diversity, HT favours inclusion, allowing everyone to feel accepted and valued, while also condemning any form of discrimination or harassment.



All HT's activities are carried out in accordance with international best practice and in compliance with ethical values, ethical obligations and professional standards.

Promoting the importance of basic research and knowledge-based innovation is at the heart of HT's scientific dissemination activities. These activities raise also society's awareness of the importance of basic science in making fundamental discoveries for human health and the progress of society at large.

HT's general ethical principles are the core values of its operational procedures, designed to achieve its institutional purpose. These principles are illustrated in the figure below:

LAWFULNESS	FIGHT AGAINST RACISM AND XENOPHOBIA	HEALTH, SAFETY AND ENVIRONMENTAL PROTECTION
TRANSPARENCY	ANTI-CORRUPTION AND ANTI-MONEY LAUNDERING	FAIRNESS IN CASE OF POTENTIAL CONFLICTS OF INTEREST
IMPARTIALITY AND NON-DISCRIMINATION	PROTECTION OF THE FOUNDATION'S ASSETS	INTEGRITY AND ENHANCEMENT OF HUMAN RESOURCES
TRANSPARENCY, FAIRNESS, TIMELINESS AND COMPLETENESS IN RELATIONS WITH SUPERVISORY BODIES AND INSTITUTIONS	RESPECT FOR AUTHORISATIONS AND MANDATES	CAREFUL MANAGEMENT OF FINANCIAL RESOURCES, IN THE DRAFTING OF THE BUDGET AND OTHER INSTITUTIONAL COMMUNICATIONS
CORRECT USE OF THE COMPUTER SYSTEM AND COPYRIGHT PROTECTION	DILIGENCE	REPUDIATION OF CRIMINAL ORGANISATIONS
ACCOUNTABILITY AND COMPLIANCE WITH INTERNAL PROCEDURES	RESEARCH INTEGRITY AND RESPONSIBLE CONDUCT OF RESEARCH	LEGALITY IN TAX MATTERS
CONFIDENTIALITY	REPUDIATION OF TERRORISM AND OF SUBVERSION OF DEMOCRACY	INTERNAL CONTROLS

Chiara Ambrosini
Technician
National Facility for Genome Engineering & Disease Modelling

GRI

1.2 Research Centres, Scientific Facilities and Flagship Research Programmes

INTRODUCTION

Five years after its foundation, HT is a young and dynamic research institute, where internationally recruited scientists have laid the foundations for unravelling the fundamental molecular mechanisms of human pathophysiology across different biological scales, from molecules, cells, tissues and organs to the individual and to populations of individuals in space and time, using a systems biology approach. HT has four main objectives in the life sciences sector in Italy:

1. Promoting research into human biology, health and well-being;
2. Providing technologies to the national scientific community through shared infrastructures;
3. Offering advanced scientific training to scientists;
4. Facilitating the exploitation of the results of research and technological innovation through technology transfer.

In its early years, HT established five Research Centres in the areas of genomics, neurogenomics, structural biology, computational biology and health data science. These Centres serve as the fundamental pillars of HT's research, recruiting and training highly qualified personnel, developing innovative methods and tools, and creating basic infrastructure for the institute.

HT is a young and dynamic research institute, where internationally recruited scientists have laid the foundations for unravelling the fundamental molecular mechanisms of human pathophysiology.

RESEARCH AT HT

HT will enter a new phase in its development, refining and extending its research vision.

Making the most of the cutting-edge expertise and thematic orientation of each Research Centre, HT will enter a new phase in its development, refining and extending its research vision. Over the next five years, HT intends to pursue interdisciplinary and crosscutting research programmes at the Centres known as Flagship Research Programmes, with the aim of elucidating the fundamental molecular mechanisms underpinning various pathophysiological processes.

The Flagship Research Programmes are based on the work of HT's research groups, organised into lines of activity and expertise in order to achieve shared goals which include:

1. going beyond the boundaries between research areas and traditional disciplines, promoting interdisciplinary research and enhancing collaboration;
2. identifying clear objectives that call for different competences to be achieved, thus increasing the research ambition of the institute as a whole;
3. offering the freedom to work on basic mechanisms, while also contributing to research on human health and disease;
4. identifying gaps in knowledge and technology that require new skills or collaboration with external partners;
5. promoting interactions and collaborations with academic, clinical, biotechnology and pharmaceutical partners, creating new opportunities for translational research.

To increase interdisciplinarity, synergies and communications between Centres and research groups, HT intends to add new skills and approaches through the recruitment of new groups, particularly in the areas of Molecular Cell Biology and Biophysical Modelling and Simulation.

RESEARCH CENTRES AND AREAS

GENOMICS

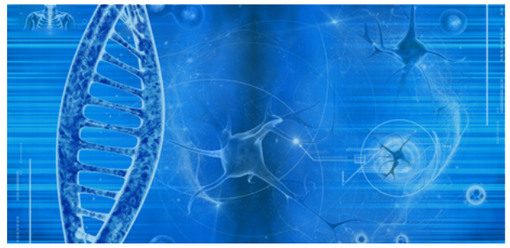
The Genomics Research Centre pursues research aimed at uncovering the complex mechanisms governing gene expression and how heritable genetic information translates into phenotypic traits.

Applied to humans, and in the context of precision medicine, this research can identify molecular targets and markers for disease prevention, early diagnosis and personalised treatment. In addition to conducting genetic and genomic studies focused on disease-related mechanisms, the Centre promotes and supports the implementation of large-scale genomic screening projects for patient stratification.

The Genomics Research Centre consists of two complementary research programmes: Population and Medical Genomics (which uses genomic information to identify the genetic causes of specific defects) and Functional Genomics (which develops and uses new methods to study the relationship between the individual genome and biological function).

As at 31 December 2024, **9** research groups had been established at the Genomics Centre.

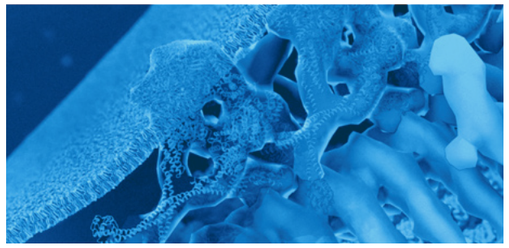
NEUROGENOMICS



The Neurogenomics Research Centre studies the mechanisms responsible for human neuropsychiatric and neurological diseases, ranging from neurodevelopmental to neurodegenerative disorders. It combines basic and translational research through different experimental systems and computational approaches, from brain organoids to animal models to epidemiological cohorts, to probe the structure, function and development of the nervous system at multiple scales of resolution.

As at 31 December 2024, **5** research groups had been established at the Neurogenomics Centre.

STRUCTURAL BIOLOGY



The Structural Biology Research Centre seeks to answer fundamental questions about how macromolecular machines work and how they harmonise their activities to form a fully functional cell. It also studies how these processes are regulated and what happens in human disease, gaining detailed knowledge of the structure of macromolecules and macromolecular complexes in order to understand their functioning.

The Centre is equipped with a state-of-the-art Cryo-Electron Microscopy technology facility that uses Single Particle Analysis (SPA) and Cryo-Electron Tomography to obtain high-resolution structures of macromolecules both in isolation and in their cellular context. It also uses complementary approaches, such as X-ray crystallography, fluorescent single-molecule microscopy, native or cross-linking mass spectrometry and a wide range of biophysical analyses, to obtain details on the functioning mechanisms of macromolecules.

The Structural Biology Research Centre covers a broad area of human cell biology and focuses on advancing the understanding of molecular mechanisms affected in human diseases. To do this comprehensively, it launches synergies with HT's other research centres, generating specific knowledge that is crucial for future studies aimed at developing new drugs.

As at 31 December 2024, **5** research groups had been established at the Structural Biology Research Centre.

COMPUTATIONAL BIOLOGY

The Computational Biology Research Centre aims to develop new mathematical and computational approaches for the analysis and interpretation of medical and biological data. Computational biology at HT is not only about the development of new data analysis methods but also about the importance of asking fundamental questions about human biology and health that can only be addressed using computational approaches, from mathematical modelling of dynamic systems to machine learning and artificial intelligence.

HT's Computational Biology Research Centre generates new datasets based on computationally informed experimental projects. It also analyses and interprets data generated by other HT centres and external collaborations.

It uses statistical, bioinformatics and artificial intelligence approaches to study a variety of biological issues, in particular to understand the mechanisms and dynamics associated with diseases. One of the research objectives of the Centre is to identify mechanisms of resistance to anti-cancer drugs, predict tumour evolution and ensure the early and effective treatment of each patient. The Centre is also involved in designing methods for cancer drug discovery and reuse, using functional genomics data from cancer vulnerability screening and in vitro models. In addition to the analysis of genetic data from patients and model systems, the Centre's activities are also focused on analysing single-cell and multi-cell data, as well as processing medical and microscopy images using artificial intelligence.

As at 31 December 2024, **4** research groups had been established at the Computational Biology Centre.

HEALTH DATA SCIENCE

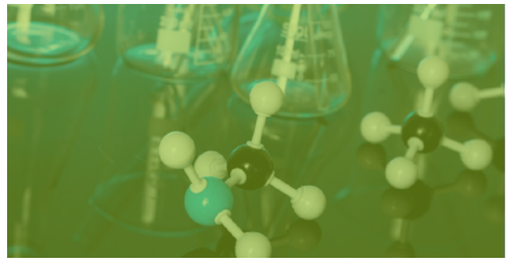
The Health Data Science Centre, established in partnership with the Politecnico di Milano, is a strategic initiative to promote innovation in biomedical research and public health. Through the extensive application of data science, the Centre aims to transform the understanding of the mechanisms underlying diseases, contributing to the improvement of prevention, diagnosis and treatment, with a concrete impact on the health of the population.

The Centre's activities are geared towards generating new scientific knowledge through integrative studies on genetic, clinical and imaging data from wearable devices and biomolecular sources. To this end, the Centre is committed to the development of IT infrastructure, analytical capabilities, advanced statistical methods and multidisciplinary research programmes, with the aim of supporting the evolution of biomedical research at national and international level.

The approach taken has three main strands, namely (i) the collection and integration of health data from administrative sources, through structured collaborations with regional health districts, hospitals and scientific societies, (ii) the production of new biomolecular data from population studies and (iii) the development and application of innovative analytical methods, integrated with clinical epidemiology and health research.
The Centre aims to become as a reference point for large-scale health data analysis, networking with academic, institutional and industrial partners, both in Italy and abroad.

As at 31 December 2024, **2** research groups had been established at the Health Data Science Centre.

MOLECULAR CELL BIOLOGY

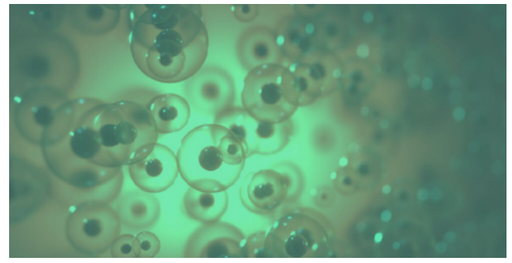


Molecular Cell Biology explores the molecular basis of biological processes using a variety of methods and perspectives, from standard molecular techniques to biochemical reconstitution and biophysical manipulation, across various levels - from molecules to cells and tissues, with the cell at the core. This field spans biology, physics and bioengineering, acting as a thematic 'glue' among existing research areas and as a 'bridge' between Structural Biology and Genomics.

This discipline is crucial in medicine, genetics, evolutionary biology, bioinformatics, genome engineering and genomics. It is fundamental in DNA analysis, drug discovery, tissue growth and transplantation, and other health-related areas. It advances our understanding of cellular functions, including anatomy, growth, migration, survival and death, as well as human molecular mechanisms in physiological and pathological conditions.
The programme will combine microscopy imaging techniques and computational methods to develop models of human tissues in health and disease, using mathematical and biophysical models and leveraging omics, computer science and physics techniques.

As at 31 December 2024, **1** research group had been established in the Molecular Cell Biology area.

BIOPHYSICAL MODELLING AND SIMULATION



Biophysical Modelling and Simulation of complex biological systems involves designing experiments, using computational methods to derive biological information from complex data sets, validating experiments with predictive models and using biophysical modelling to predict the influence of biological and physical factors on complex systems.

Mechanistic and biophysical modelling helps explain how molecules and cells form tissues and understand the temporal disease dynamics. Addressing the spatial and temporal complexity of biological systems requires advanced approaches and technologies such as spatial omics, high-throughput microscopy and multiplexed immunocytochemistry.

HT aims to advance research in this area by combining modelling techniques with data-driven machine learning approaches. This programme involves the design of new predictive computational methods for spatiotemporal systems biology. HT validates these methods and drives scientific innovation by combining computational and experimental skills.

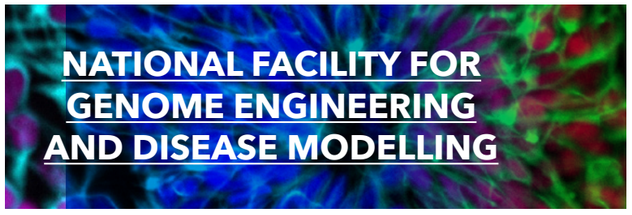
The recruitment of research teams in this field will start in 2025.

SCIENTIFIC FACILITIES

HT's ambition to become a reference centre for life sciences is also mirrored in its second objective, namely to create and manage shared research infrastructures, National Facilities, which meet the needs of the Italian life sciences research community. HT's National Facilities provide access to cutting-edge technologies in the fields of genomics, genome engineering and disease models, light microscopy, structural biology and data management and analysis.

NATIONAL FACILITIES

The head of HT's Core Research Facilities and Services is Dr. Eugenio Fava. Prior to this role, he acquired extensive experience at the Deutsches Zentrum für Neurodegenerative Erkrankungen (DZNE) in Bonn, where he worked for more than a decade. During that period, he managed significant staff and budgets, and fostered industrial collaborations. He also led a Systems Neurobiology research group at DZNE, focusing on the role of neuroinflammation in neurodegenerative diseases.



The facilities already implemented and currently existing are:

NATIONAL FACILITY FOR GENOMICS

The National Facility for Genomics (GenO) is a pioneering initiative offering innovative services in the field of genomics. Its mission is to develop experimental and analytical workflows to explore various aspects of genomics, including DNA and RNA analysis, study of chromatin and other epigenetic and regulatory markers. These techniques are applicable to different areas of biology, with a resolution ranging from entire organisms to tissues or individual cells. In short, GenO aims to strengthen Italian scientific research in all areas of genomics.

The National Facility for Genomics has **4** Infrastructural Units (IUs):

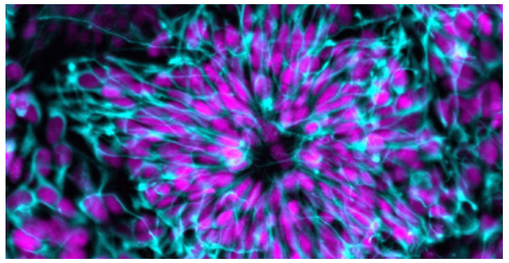
- IU1 High-throughput sequencing;
- IU2 Multi-omics technologies;
- IU3 Computational genomics;
- IU4 Technology development.

To ensure maximum productivity and quality of research, the National Facility for Genomics uses state-of-the-art equipment.

Below is the list of available technologies:

- Illumina MiSeq;
- Illumina NextSeq 2000;
- Oxford Nanopore PromethION 48;
- Promega Spectrum Compact;
- 10x Genomics Chromium Controller and a Chromium X;
- 10x Genomics Chromium Connect;
- BD Rhapsody BD Bioscience single-cell analysis system;
- CellenONE f1.4 ScienION;
- Agilent 4200 TapeStation;
- Agilent fragment analyser;
- Agilent FEMTO Pulse;
- Agilent Bravo NGS Workstations Option A and Option B;
- Biomek i7 automated system integrated with Echo525 Acoustic Dispenser;
- QIAGEN QIACube HT;
- Covaris E220 Focused Ultrasonicator;
- Glomax Discover Promega microplate reader;
- Nanostring Saptial GeoMX digital profiler.

NATIONAL FACILITY FOR GENOME ENGINEERING AND DISEASE MODELLING



The main mission of the National Facility for Genome Engineering and Disease Modelling is to implement a multidisciplinary platform providing access to cutting-edge technologies in the fields of pluripotent stem cells, two- and three-dimensional cell model generation, and genomic engineering. Leveraging the latest laboratory automation technologies, the HT team translates critical protocols for stem cell generation, genomic manipulation and differentiation into modular workflows with high manufacturing and automation potential. This approach simplifies key steps in disease modelling, improving standardisation and manufacturing. The system developed at HT's facility enables the execution of a workflow that, starting from the patient, allows the generation of a full range of investigative tools, revolutionising the study and modelling of previously inaccessible diseases.

The National Facility is divided into **4** Infrastructural Units:

- IU1 - Pluripotent Stem Cells (PSC) and Advanced Cell Culture (Integration);
- IU2 - Gene Editing Technologies;
- IU3 - Validation and differentiation of modified modelling in standardised culture assays (including development and fine-tuning of differentiation protocols);
- IU4 - Technology development.

The structure offers the scientific community the first facility for modelling human diseases at scale. Access to the Facility allows users to plan an experimental project by drawing on the entire catalogue of technologies in a modular and flexible way. Services, support and training are offered in the areas of gene editing of pluripotent stem cells and immortalised/cancer cell lines:

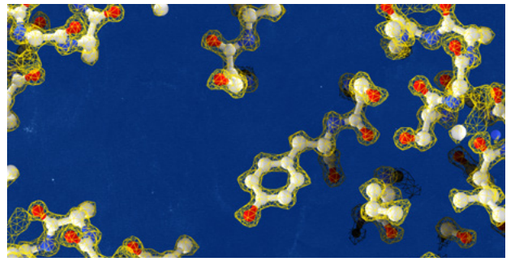
- Knock-out;
- Gene editing;
- Reporter cell lines;
- Point mutations;
- Design and development of customised projects.

Additional support services are also offered:

- Reprogramming of PBMCs and fibroblasts in iPSCs;
- Validation of the modified model using 2D or 3D differentiated cell cultures;
- Customised development of the differentiation protocol.

The facility is networking with leading stem cell biology facilities in Europe and beyond, with the aim of sharing expertise, harmonising procedures and protocols and creating a community that represents a reference point in stem cell biology.

NATIONAL FACILITY FOR STRUCTURAL BIOLOGY



The National Facility for Structural Biology (StructBio) offers a comprehensive solution for structural characterisation across scales, from tissues to amino acid side-chains. Staffed by experts in sample preparation, characterisation and imaging, StructBio supports the national scientific community in the investigation of biological actors of interest, both in isolation and in their cellular compartments. This facility aims to facilitate advanced research by providing tools and expertise to study biological structures with precision and detail.

The National Facility for Structural Biology has **6** Infrastructural Units (IUs):

- IU1 - Cryo-EM;
- IU2 - Biomass Production;
- IU3 - Biophysics;
- IU4 - Structural Proteomics;
- UI5 - Dynamic Single-molecule;
- IU6 - Technology development.

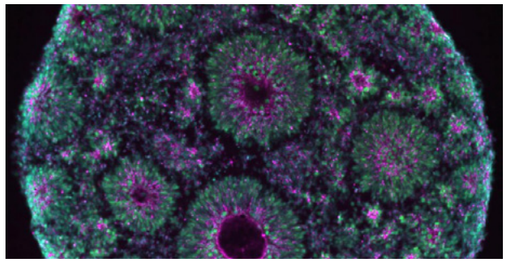
To ensure maximum productivity and quality of research, the National Facility for Structural Biology uses state-of-the-art equipment. The list of technologies available for access by external users to the Cryoelectron Microscopy Unit (IU1) includes, among others:

- a 300kV Thermo Scientific Titan Krios G4i TEM equipped with Thermo Scientific Falcon 4i direct electron detector, Thermo Scientific Selectris X energy filter, Thermo Scientific CETA 16M and Volta phase plate;
- a Thermo Scientific Spectra 300kV STEM equipped with Thermo Scientific CETA 16M with speed enhancement and fully dedicated to electron tomography workflows;
- a Thermo Scientific Glacios 200kV TEM equipped with Thermo Scientific Falcon 4i, Thermo Scientific Selectris X energy filter, CETA-D and Volta phase plate;
- a Thermo Scientific Talos L120C 120kV TEM equipped with Thermo Scientific CETA 16M to allow room temperature and cryogenic imaging by Gatan ELSA cryogenic holder;
- a Leica Stellaris 5 confocal microscope equipped with white-light laser and cryostage to perform cryo-CLEM experiments;
- a Leica Thunder wide-field microscope equipped with cryostage to perform cryo-CLEM experiments;
- ancillary equipment for sample preparation, including: plunge freezing devices (Thermo Scientific Vitrobot Mark IV), glow discharger units (Pealco EasyGlow and Quorum GloQube), plasma cleaner (Gatan Solarus II), carbon coating system (Leica ACE600) and other sample preparation tools for high-pressure freezing (Leica EM ICE) and freeze substitution (Leica AFS2).

The Biomass Production and Biophysics Unit (BU2) will offer, among other dedicated tools:

- a fermentation laboratory equipped with fermenters for the large-scale production of yeasts and bacteria (InforsHT Techfors-s 15L and Techfors 150L);
- a laboratory for the production of insect and mammalian cells with two 0.5L (myControl) and 15L (ezControl) bioreactors;
- Tools for sample characterisation;
  - Refeyn OneMP (mass photometry);
  - Xtal Concepts SpectroLight 610 (Dynamic Light Scattering);
  - Nanotemper Tycho NT.6 and Prometheus NT.48 (nanoDSF).
- Tools for affinity determination:
  - Microcal PEAQ-ITC (isothermal titration calorimetry);
  - Sartorius Octet R8 (BioLayer Interferometry);
  - Nanotemper Monolith (microscale thermophoresis).

NATIONAL FACILITY FOR LIGHT IMAGING



The **National Facility for Light Imaging** offers a full range of services, including advanced imaging, sample preparation, functional cell imaging and cell sorting. The main mission of the facility is to support science by providing internal and external users with a dedicated team for:

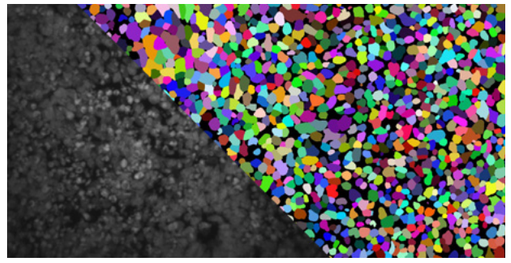
- Designing experiments;
- Acquiring images and data with state-of-the-art systems;
- Offering training and assistance in the development of new protocols and technologies.

Thanks to the integration of workflows within HT, users can access shared workflows, where data acquired in the National Facility for Light Imaging can be further processed and analysed by other National Facilities.

The National Facility for Light Imaging has **6** Infrastructural Units (IUs):

- UI1 Imaging;
- IU2 Tissue processing;
- IU3 Flow cytometry;
- IU4 High Content Imaging;
- IU5 Ion Imaging;;
- IU6 Technology development - customised microscopy.

NATIONAL FACILITY FOR DATA HANDLING AND ANALYSIS



The mission of the **National Facility for Data Handling and Analysis** is to support the national scientific community through the analysis of biological data generated by high-throughput sequencing and imaging technologies. The main objective of the facility is to provide bioinformatics and bioimage analysis expertise for the interpretation of large-scale, complex biomedical datasets.

The NF for Data Handling and Analysis has **3** Infrastructural Units:

- IU1 Image analysis (NoBIAS);
- IU2 Omics data analysis (NOAS);
- IU3 Technology development (DevOps/WebDev).

The three units of the **National Facility for Data Handling and Analysis** are engaged in technology development, with the aim of creating reusable research software within the facility and deploying innovative components that can be used in users' laboratories. This technology development ensures that the facility remains state-of-the-art and organically adapts to the needs of the scientific community.

Another pillar of the facility is the provision of training opportunities for users through workshops and in-depth courses. These events allow users to take the acquired knowledge back to their home institutions, thus increasing the facility's impact on the national community.

The **National Facility for Data Handling and Analysis** is supported by a large data centre and scientific computing infrastructure, initially consisting of an HPC system with approximately 100 compute nodes, 30 GPU nodes, 20 PB of total storage space, combined with access to cloud-based resources.

In addition to the National Facilities, the HT campus, as at 31 December 2024, had:

DATA CENTRE

Research activities require considerable storage capacity to handle and analyse an extensive amount of clinical information, biological data, images, etc. The Campus is therefore equipped with a data centre with a large storage and computing capacity that is served by an ultra-broadband network connection

The Data Centre project, completed in 2022, involved the construction of new mechanical, electrical, special and fire-fighting systems serving the 'CED', 'Library' and 'UPS' rooms located in the basement of Palazzo Italia. The design solution adopted by HT now houses the new HPC systems consisting of 60 compute nodes, which are interconnected by an InfiniBand HDR100 network and 25Gb Ethernet.

The cluster is managed and made accessible to users via two redundant head nodes. All nodes access a BeeGFS-based parallel high-availability file system with a total storage capacity of 2.1PB. The cluster is also directly connected to the central data storage system installed in the Shelter that is physically located in the technical area outside Palazzo Italia. The backup server, based on Bacula Enterprise with dedicated 2.2 PB storage, is also housed in the CED room and is used to back up the Virtual Machines, Office365 and data shared on the central data storage system. In addition, an infrastructure with redundant cooling and power supply in 2N configuration serving the IT load has been built to ensure that the required thermo-hygrometric conditions are maintained.

For fire detection purposes, all rooms are equipped with smoke detection and early fire detection systems with air sampling. In the event of a fire, extinguishing is ensured by the NOVEC gas extinguishing system. The management and monitoring of critical and sensitive plant alarms will be integrated and managed by the BMS supervision system already present in Palazzo Italia.

FLAGSHIP RESEARCH PROGRAMMES

The **HT Flagship Research Programmes** related to human physiology and disease will leverage the cutting-edge expertise and work carried out in the HT Research Centres, focusing on five main therapeutic and technological areas:

- **Cardiovascular and metabolic diseases**, playing a central role in cell fate decisions by disrupting metabolism;
- **Multimodal AI across scales**: building analysis ladders to bridge biological scales;
- **Immunogenomics and cancer**: prototyping diseases that can develop, evolve and progress over time;
- **Neurodevelopmental and neuropsychiatric conditions**: diseases resulting from complex interactions between as-yet-unknown genetic and environmental factors;
- **Ciliopathies**: a heterogeneous group of disorders involving dysfunction of the cilium.

More information on Flagship Research Programmes can be found in chapter 2.3. Strategy.

1.3 Key Information

The figure below shows, for each key strategic objective, some highlights of the year 2024:

As regards crosscutting strategic objectives, the most important results achieved in 2024 are reported below.

54% of employees were women as at 31.12.24;
46% of employees were men as at 31.12.24;

6 HT scientists awarded in 2024;
286 participations in conferences with presentation of validated talks/posters;

Consolidation of ***Digital Transformation*** projects;
97% of incidents in the Campus area successfully resolved as at 31.12.24;

14 new partnerships with universities / Hospitalisation and Healthcare Institutes / Research organisations / Industries
44 institutional initiatives and events with other actors in the MIND area.

ROADMAP 2024

Here are the highlights of HT in 2024:

- Ms. Elena Trovesi became the new Chief Administrative Officer of Human Technopole
- The HT Director, Prof. Marino Zerial, was elected as a new member of the Leopoldina
- Karthik Ramanadane, HT researcher, won an HFSP Fellowship for thyroid studies and was awarded two Marie Curie Prime Fellowships
- The National Facilities and the first calls for infrastructure access were launched
- The Chan Zuckerberg Initiative rewarded HT's Giastonbury Group
- The HT Director won the Mercury Prize for excellence in research
- HT contributed to the first open framework (Serdif) to link rare diseases and environmental data
- HT was selected as a partner of Genome of Europe
- Dr. Eugenio Fava became the new Head of Research Facilities and Services
- HT won the Oscar di Bilancio in the category 'social enterprises and non-profit organisations'

ACTIVITIES IN 2024

The figure below highlights the main activities and projects carried out by the departments and areas of the Human Technopole Foundation during 2024:

Governance activities

- Adoption of the new Articles of Association of Human Technopole
- Approval of the National Facilities Implementation plan
- Approval of the reviewed construction design of the South Building and Technological Pole
- Approval of the 2025-2027 Multi-Year Programme Plan
- Approval of the Policy on Research integrity and responsible conduct of research
- Continuation of the activity of the Supervisory Body with regard to to the updating of Model 231 and its approval by the Supervisory Board;

Administrative and institutional activities

- Opening of the first 5 National Facilities
- Recruitment of 88 new employees
- Consolidation of the Foundation's compliance and administrative operation
- Performance of training activities in non-scientific fields on hard and soft skills
- Promotion of communication and institutional initiatives targeting national and local stakeholders
- Continuation of the activities of the Centre for Innovation and Technology Transfer
- Approval of implementation plan for Digital Transformation activities
- Introduction of initiatives to support employee welfare and work-life balance measures
- Approval of the new Gender Equality Plan
- Development of sustainability initiatives with the MIND Sustainability Roundtable
- Development of the new 2024-2025 Commuting Plan
- Investments in CyberSecurity
- Implementation of the HT Supplier List
- Award of the Oscar di Bilancio for the Integrated Report 2023

Scientific activities

- Continuation of scientific training activities with 36 organised events and over 500 participations
- 14 new formal partnerships and scientific collaboration agreements, both in Italy and abroad
- 190 publications in prestigious international journals, 76 participations in several cohort studies and development of 50 new experimental methods and protocols
- 6 prestigious international prizes and awards given to some researchers, as well as over 11 million in new loans granted by external research funds;

Campus activities

- Completion of the construction site for the liquid nitrogen supply line serving CryoEm laboratories
- Completion of the construction site for the new biosafety level no. 3 laboratory
- Conclusion of the PHASE 1 construction site for Light Imaging expansion
- Completion of work to open the Preclinical Research Facility
- Completion of work to open the Mass Spectrometry laboratory
- Finalisation of contract for executive project development and works for Light Imaging expansion
- Finalisation of contract for executive project development and works for Cryo-EM microscope expansion
- Finalisation of contract for the development of the Tape Library executive project and works
- Awarding of design and installation of sheher modules for the new CED HPC cluster
- Design review for the construction of the South Building & Technology Pole

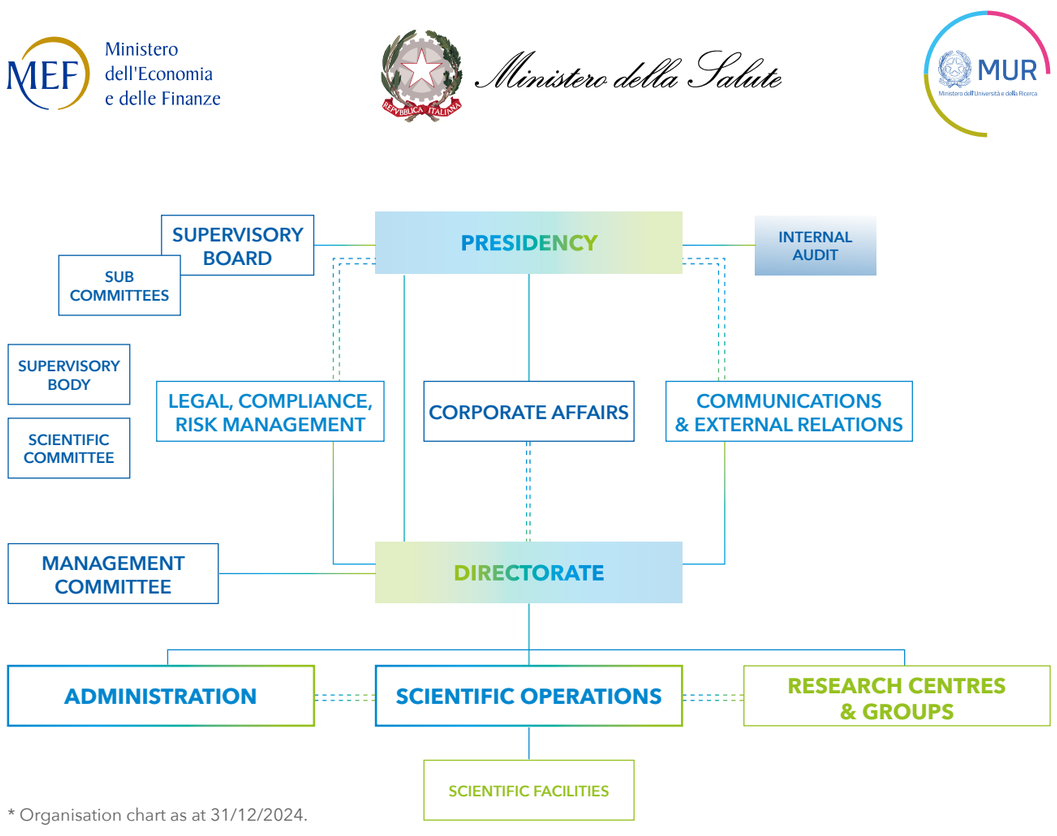
GRI

1.4 Governance and organisation

The HT Articles of Association and Regulation provide for a governance system structured according to a dual model. In particular, the Supervisory Board, chaired by HT's President, is responsible for the general direction and control of the Human Technopole Foundation's activities, while the Management Committee, chaired by the Director, is the governance body responsible for carrying out the activities necessary to ensure the ordinary progress and achievement of HT's objectives.

ORGANISATION CHART*

HT's organisational structure is formalised in the organisation chart shown below:



* Organisation chart as at 31/12/2024.

THE PRESIDENT

The President is the legal representative of the Human Technopole Foundation, acts as President of the Supervisory Board, ensures the strategic direction of HT, manages institutional and public relations and promotes training and dissemination activities related to the social and economic impact of scientific research and HT's public commitment.

By decree of 7 July 2022, the Presidency of the Council of Ministers appointed Prof. Gianmario Verona as the new President of HT's Supervisory Board.

Prof. Gianmario Verona was Rector of the Bocconi University of Milan from 2016 to 2022. He holds the Romeo and Enrica Invernizzi Foundation Chair in Innovation Management at Bocconi University in Milan and his research, teaching and advisory activities focus on the strategic and organisational management of technology and innovation.

SUPERVISORY BOARD

The Supervisory Board ensures the excellence of the Human Technopole Foundation and compliance with the rules on the appointment of its bodies. It verifies the use of resources, oversees the general coordination of internal control functions, manages the scientific evaluation process of HT activities and carries out general guidance and control activities.

According to HT's Articles of Association, the Supervisory Board has thirteen members, including the President, appointed as follows:

- Seven members are appointed by the President of the Council of Ministers, of whom two are designated by the Minister of Economy and Finance, one by the Minister of Health and one by the Minister of University and Research;
- The remaining members are appointed by the President of the Council of Ministers, in consultation with the Ministers of Economy and Finance, Health, University and Research, as follows:
  - One is appointed by agreement between the Municipality of Milan and the Lombardy Region;
  - One is appointed by the Conference of Italian Rectors and Universities (CRUI);
  - One is appointed by the Council of Presidents of Public Research Organisations;
  - Two are appointed by the Supervisory Board from among scientists in disciplines related to the HT project and from among international public health experts, who mainly carry out their activities abroad;
  - One is appointed by agreement between the Participating Members, provided that, also in association, they pay at least three per cent of the annual State subsidy.

Each member of the Supervisory Board remains in office for four years and until its new members are appointed and can be confirmed once only. The Supervisory Board meets approximately every 45 days and extraordinarily if necessary.

In 2024, the Supervisory Board had **12** members, including the President. A thirteenth member may be appointed by the Participating Members, in agreement with each other, provided that, also in association, they pay at least three per cent of the annual State grant. To date, there are no Participating Members in the Human Technopole Foundation.

The members of the Supervisory Board as at 31 December 2024 were:

GIANMARIO VERONA	President of the Human Technopole Foundation. Former Rector of Bocconi University (2016/2022) and Professor of Innovation Management
NICOLAO PAULA BOVOLENTA*	Director of the Centro de Biologia Molecular Severo Ochoa, Autonomous University of Madrid
MAURA FRANCESE	Deputy Head of Economic Structure Service, Department of Economics and Statistics, Bank of Italy
GIOVANNA IANNANTUONI	Rector of the University of Milan Bicocca
GIUSEPPE IPPOLITO	Professor of infectious diseases at the Unicamillus International University of Health Sciences; former Director General of the Italian Ministry of Health
BIAGIO MAZZOTTA	President of Fincantieri, a former State Accountant General
LUISA MINGHETTI*	Director of Research Coordination and Support Service, National Institute of Health
MARCELLA PANUCCI	Consultant to the Minister of University and Research
FRANCESCA PASINELLI	Telethon Board Member
MARIA SIBILIA*	Professor of Cellular and Molecular Tumorbiology, Head of the Center for Cancer Research at the Medical University of Vienna
SERENA SILEONI	Associate Professor of Constitutional Law at the Suor Orsola Benincasa University, former advisor to the Presidency of the Council of Ministers
GIANLUCA VAGO*	President of the CNAO Foundation, former Rector of the University of Milan

*new or renewed appointments in 2024

During 2024, the Supervisory Board met **9** times.

Article 12, paragraph 8 of the Articles of Association of the Human Technopole Foundation says that "The Supervisory Board may be divided into sub-committees." During 2022, the Supervisory Board resolved to set up the following 3 Board committees:

CONTROL AND RISK COMMITTEE	The Committee has an advisory role, carries out preliminary investigations and submits proposals to the Supervisory Board in relation to risks and the internal control system. This also includes the Organisational Model pursuant to Legislative Decree 231/2001 and the Privacy Organisational Model, liaising with Internal Audit & Compliance.
APPOINTMENTS AND REMUNERATION COMMITTEE	The Committee has an advisory role, carries out preliminary investigations and submits proposals to the Supervisory Board in relation to appointments falling within its remit. The Committee also proposes initiatives to the Supervisory Board for the audit and supervision of appointments for which the Management Committee is responsible and also concerning staff remuneration policies.
SUSTAINABILITY COMMITTEE	The Committee has an advisory role: it prepares investigations and makes proposals to the Supervisory Board in relation to ESG (Environmental, Social and Governance) sustainability policies and inclusion policies. It also promotes the removal of any obstacle that de facto limits equal opportunities within the Human Technopole Foundation, both in working conditions and in the remuneration policy.

THE DIRECTOR

The Director of the Human Technopole Foundation is responsible for implementing the multiannual Strategic Plan and chairs the Management Committee. On 28 February 2023, the Supervisory Board appointed Prof. Marino Zerial as HT's new Director.

Prof. Marino Zerial graduated in Biology at the University of Trieste in 1982. He joined HT after serving as a research group leader at EMBL in 1989 and after spending over 20 years at the Max Planck Institute of Molecular Cell Biology and Genetics, MPI-CBG (Dresden, Germany), of which he was the Director and co-founder. He is Honorary Professor at the Medical Faculty, Technische Universität Dresden (Germany).

THE MANAGEMENT COMMITTEE

The Management Committee carries out the governance work necessary to ensure HT's ordinary progress and activities. It consists of 5 members, including the Director chairing it. Each member of the Management Committee remains in office for four years and until its new members are appointed and can be confirmed once only. The members of the Management Committee are appointed by the Supervisory Board.

The members of the Management Committee as at 31 December 2024 were:

MARINO ZERIAL	Director of the Human Technopole Foundation. From 1998 to 2023 he was the Director and co-founder of the Max Planck Institute of Molecular Cell Biology and Genetics, MPI-CBG (Dresden, Germany)
IRENE BOZZONI	Full Professor of Molecular Biology at 'La Sapienza' University in Rome
NANDO MINNELLA	Head of the Department for Resources, Organisation and Digital Innovation of the Ministry of Education and Merit
STEFANO PICCOLO	Full Professor of Molecular Biology at the University of Padua
FABIO TERRAGNI	Partner and Director of Alchema

During 2024, the Management Committee met **10** times.

THE SCIENTIFIC COMMITTEE

The Scientific Committee is an advisory body to which the Articles of Association assign a wide range of important functions. These include the evaluation of HT's scientific activity, the organisation of activities in the medium term and the adequate provision of both financial resources and personnel to the various ongoing projects.

The members of the Scientific Committee as at 31 December 2024 were:

GUALTIERO RICCIARDI*	Full Professor of Hygiene and Director of the School of Specialisation in Hygiene and Public Health, Catholic University of the Sacred Heart, Rome
GENEVIÈVE ALMOUZNI	Director of Research, Centre National de la Recherche Scientifique, Institut Curie, France
ANDREA BALLABIO	Principal Investigator, former Scientific Director, Telethon Institute of Genetics and Medicine (TIGEM), Italy
PIETRO DE CAMILLI	Professor and Director, Program in Cellular Neuroscience, Neurodegeneration and Repair (CNNR), Yale School of Medicine, USA
KRISTIAN HELIN	Chief Executive Officer and President, Institute of Cancer Research, UK
ALBERTO MANTOVANI	Professor Emeritus, Humanitas Clinical Institute, Italy
MARGARET MCMAHON	Global Head Data Science, Roche Information Solutions Data & Analytics, Switzerland
GENNARO MELINO	Full Professor of Biochemistry, Director of the 'Torvergata Oncoscience Research' Centre (TOR), University of Rome Tor Vergata, Italy
ANDREA MUSACCHIO	Director, Max-Planck Institute of Molecular Physiology, Department of Mechanistic Cell Biology, Germany
LUCA PANI	Professor of Clinical Psychiatry, University of Miami and Professor of Pharmacology and Clinical Pharmacology, University of Modena and Reggio Emilia, Italy
ALFIO QUARTERONI	Professor of Numerical Analysis, Politecnico di Milano, Italy, and Professor Emeritus, EPFL, Lausanne
NADIA ROSENTHAL	Scientific Director, The Jackson Laboratory, USA
MICHAEL SNYDER	Director, Centre for Genomics and Personalized Medicine, Stanford University School of Medicine, USA
GIULIO SUPERTI – FURGA	Scientific Director, CeMM Research Center for Molecular Medicine, Austria
FIONA WATT	Director, European Molecular Biology Organization, Germany

* Chair

During 2024, the Scientific Committee met **6** times.

BOARD OF AUDITORS

The Board of Auditors has three regular auditors and three alternate auditors, appointed by a Prime Ministerial Decree from among persons enlisted in the Register of Statutory Auditors, on a proposal of the Minister of Economy and Finance, following a nomination by the Founding Ministries. Each Founder chooses one regular auditor and one alternate auditor.

The members of the Board of Auditors remain in office for three years and may be reconfirmed once only. The Board of Auditors monitors the regularity of the Human Technopole Foundation's management and its accounts, carries out cash audits and prepares reports on the final accounts, which it then submits to the Supervisory Board.

The members of the Board of Auditors as at 31 December 2024 were:

PIERA MARZO	Chair, designated by the Minister of Economy and Finance
SARA ROSSI	Standing member, designated by the Minister of University and Research
ANDREA VESTITA	Standing member, designated by the Minister of Health

During the year 2024, the Board of Auditors met **9** times.

SUPERVISORY BODY

The Human Technopole Foundation effectively implements an organisational and management model that can prevent the offences referred to in Legislative Decree 231/2001 (Model 231). The task of supervising the operation of and compliance with Model 231, as well as promoting its updating, is entrusted to the Supervisory Body (SB), which has autonomous powers of initiative and control. The Human Technopole Foundation's SB meets all the requirements for the effective performance of its duties:

- **Autonomy and independence**: these requirements are essential to ensure that the SB is not directly involved in the operational activities which it oversees. The hierarchical independence of the SB must thus be guaranteed. The Supervisory Body is, therefore, positioned as a staff unit at the most senior level possible;
- **Professionalism**: the members of the SB have the technical and legal knowledge required to perform their duties. These characteristics, together with the independence of its members, guarantee their objectivity;
- **Continuity of action**: the SB ensures its constant presence in order to ensure the effective and continuous application of the Organisational, Management and Control Model under Legislative Decree 231/2001 (Model 231)).

In particular, the SB performs its supervisory functions in relation to:

- **Efficacy and adequacy of Model 231**: vthe SB checks the concrete capacity of the model to prevent the predicate offences, taking into account HT's organisation and operations;
- **Effectiveness of Model 231**: the SB monitors compliance with the model by its recipients;
- **Maintenance of effectiveness and efficacy requirements over time**: he SB ensures that the model remains effective and adequate over time;
- **Promotion of the updating of Model 231:** where necessary or appropriate, especially in case of changes in the organisation or operations of the entity or in the relevant regulations, the SB proposes updates to the model.

The members of the SB as at 31 December 2024 were:

VITO BRANCA*	Lawyer
ANDREA CALLEA	General Counsel & Head of Legal at HT
SALVATORE SCUTO	Lawyer

* Chair

In the course of 2024, HT continued to implement the 'Organisational, Management and Control Model' pursuant to Legislative Decree no. 231/2001 (Model 231), regulating the administrative liability of entities in the field of offences caused by crime, last updated on 30 October 2024. In relation to Model 231, training activities were carried out for managerial and non-managerial personnel.

The Supervisory Body continued to monitor the operation of and compliance with Model 231. In relation to the handling of reports of possible violations of Model 231 and of predicate offences giving rise to the entity's administrative liability, the activity of the Supervisory Body also complied with the recently-enacted whistleblowing law (Legislative Decree 24/2023).

In the financial year 2024, the Supervisory Body pursued the activity for which it is responsible in relation to the updating of Model 231 with regard to the recent expansion of the catalogue of predicate offences.

INTERNAL AUDIT & COMPLIANCE

The Human Technopole Foundation, being aware of the importance of internal controls, especially as an organisation that is mainly financed by public funds, has voluntarily set up an Internal Audit & Compliance unit. This unit reports functionally and organisationally to the President regarding Compliance activities and to the Supervisory Board, through the President, for Internal Audit activities.

The Internal Audit & Compliance unit liaises with the departments and areas of HT engaged in day-to-day operations, performing first-level controls.

The function operates either:

- **Ex ante** as Compliance (second level controls) to ensure the definition of an internal regulatory framework.
- **Ex post** as Internal Audit (third level controls) to carry out compliance audits.

The 3-level set makes up the Human Technopole Foundation's 'Control Structure', which is systematically presented and illustrated to each new recruit during onboarding.

HUMAN TECHNOPOLE FOUNDATION - CONTROL STRUCTURE

1ST LEVEL CONTROL	2ND LEVEL CONTROL	3RD LEVEL CONTROL
RESEARCH / ADMINISTRATION	COMPLIANCE	INTERNAL AUDIT
• Responsible: all managers and employees	• Responsible: Compliance Manager	• Responsible: Internal Audit Manager
• Objective/Task: ensuring that operations are carried out according to internal procedures; control activities may be incorporated into procedures or performed spontaneously by employees.	• Objective/Task: ensuring the correct application of or compliance with the regulatory framework; identifying, assessing, preventing and monitoring overall compliance risks (EX ANTE)	• Objective/Task: assessing and periodically checking the completeness, functionality and adequacy of the internal control system (EX POST)

In accordance with the International Professional Practices Framework (IPPF) drawn up by the Institute of Internal Auditors (Florida-USA) - a professional association recognised as the sole international reference on the subject - Internal Audit has its own charter and regulation approved by the Supervisory Board.

The charter formalises the unit's purposes, powers and responsibilities, establishing its position within the organisation and its functional reporting lines, and also authorises access to the data, people and assets of the Human Technopole Foundation necessary to perform its activities, including their scope.

The unit's regulation governs its activities and methods, results and information flows, also vis-à-vis the Supervisory Board.

ACTIVITIES IN 2024

In 2024, in order to bring Internal Audit activities in line with international best practices, HT decided to hire an external consultancy company specialising in internal control and risk management to support the definition of its Annual Plan and the execution of audits.

The Internal Audit activities carried out in 2024 were as follows:

1. definition of the annual Internal Audit Plan prepared by carrying out the following activities:
   a. interviews with the Chair of the Supervisory Board, the Director, the Chief Administrative Officer and the General Counsel as well as with the Coordinator of the Control and Risk Committee and the Chair of HT's Supervisory Body to understand the strategies and main objectives of the entity as well as any indications and requests and to identify any changes in HT's risk profile resulting from: i) changes in the governance structure defined by its Articles of Association; ii) organisational changes expected as a result of the new governance structure; iii) the programme plan of scientific activities;
   b. documentary analysis of the 2023 Internal Audit Annual Report and the Audit Reports issued, as well as an in-depth analysis of the areas of improvement and recommendations identified during the Audits carried out in 2023.
2. execution - as at 31.12.2024 - of the following actions envisaged in the Plan:
   - Follow-up of Strategy & Scientific Affairs Audit;
   - Follow-up of Institutional Relations Audit;
   - Follow-up of Audit concerning negotiated procedures without the prior publication of a call for bids under Art. 63 of Legislative Decree 50/2016;
   - Follow-up of Supply Chain Audit.

As far as the Compliance structure is concerned, the Human Technopole Foundation has set up a system of internal regulatory documents aimed at ensuring the transposition of the laws in force as well as the uniform performance of activities. These documents are of three types, as illustrated below:

TYPES OF INTERNAL REGULATORY DOCUMENTS

A	**Regulations** provide the general framework for each area of activity, defining the general principles that govern the fundamental aspects of the organisation's operations. Regulations are rarely subject to change **APPROVED BY THE SUPERVISORY BOARD**
B	**Internal Procedures** define in detail the internal modus operandi for carrying out the different activities regulated therein (e.g. workflows), establishing the conduct expected of their recipients; Internal Procedures are reviewed periodically to ensure that they are up-to-date - **APPROVED BY THE MANAGEMENT COMMITTEE**
C	**Guidelines** provide explanations and general indications on specific issues for which the Foundation intends to give guidance in the form of operational instructions **APPROVED BY THE DIRECTOR**

When a document is drafted or revised, the person responsible for the draft must forward it to Compliance for prior controls and audit. Following the approval of HT's General Operating Regulations, in July 2024, in accordance with the provisions therein, compliance activities were progressively taken over by the General Counsel who continued the processes already started in the first six months of 2024, in relation to: audits of the entity's internal regulations (Regulations, Procedures or Guidelines, assisting HT's internal departments that required their implementation); management of the Conflicts of Interest register and annual submission of the Conflicts of Interest Report to the Supervisory Board; certification of the fulfilment of disclosure obligations regarding transparency.

ADMINISTRATION

The implementation of HT's scientific activities goes hand in hand with the expansion and consolidation of administrative and support activities for scientific research. As early as 2021, the Supervisory Board approved HT's 'Organisational Regulations', which codify the organisational structure as well as the allocation of duties and responsibilities within the Human Technopole Foundation.

The Organisational Regulations define HT's organisational macro-structure, illustrate the activities and responsibilities of the various organisational units and establish the hierarchical and functional relationships between them. The organisational structure is instrumental to the pursuit of HT's institutional and statutory purposes and meets the criteria of good governance, transparency, effectiveness and efficiency.

As part of the Organisational Regulations, an Administration Department was established, reporting to the Head of Administration and coordinating and supervising all areas and functions. In February 2024, Ms. Elena Trovesi was appointed as HT's new Chief Administrative Officer. Ms. Trovesi brings her extensive administrative experience in the field of scientific research, gained at research institutes of international standing.

FINANCIAL REPORTING OFFICER

Since 2021, the position of Financial Reporting Officer has been established in accordance with the Ministry of Economy and Finance circulars for the application of Article 154-bis of the Consolidated Law on Finance to subsidiaries. The Financial Reporting Officer is also the head of the Finance area, and was appointed on 13 July 2021 following the Supervisory Board's resolution on 30 June 2021 with the approval of the Organisational Regulations of the Human Technopole Foundation, pursuant to Article 154-bis of Legislative Decree 58/1998.

The Financial Reporting Officer is responsible for:

- Establishing administrative and accounting procedures necessary for the preparation of accounting and corporate documents and any other financial communications, ensuring their adequacy and effective application.

- Certifying, jointly with the Management Body of the Human Technopole Foundation, in a report attached to the Financial Statements:

1. the adequacy and effective application of these procedures in the reference period;
2. documentary compliance with the national accounting standards issued by the OIC;
3. that the documents are consistent with the Foundation's accounting books and records;
4. that such documents give a true and fair view of the assets and liabilities, operating performance and financial position of the Human Technopole Foundation;
5. that, with regard to the Financial Statements, the Report on Operations includes a reliable analysis of the development and results of operations, as well as the situation of the Human Technopole Foundation, together with a description of the main risks and uncertainties to which it is exposed.

During the year 2024, the development of the project aimed at analysing and mapping the 'as is' situation vs. the 'to be' situation with regard to the SoD (Segregation of Duties) and the main manual/automatic controls of the Finance area was further pursued to monitor and mitigate risks, also with a view to further developments.

The project focused, in particular, on the following processes:

- Payroll cycle;
- Expenditure reporting cycle;
- Grant cycle (review and fine-tuning);
- Treasury Cycle.

In 2024, the Grant, Expenditure reporting and Payroll cycles were tested to verify the operational effectiveness of the controls applied.

02

OUR APPROACH TO VALUE CREATION

Human Technopole has been created to bring added value to the scientific research ecosystem in Italy and Europe

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Nataliya Danilenko
Technician
Biophysics Scientific Service Unit,
National Facility for Structural Biology

GRI

2.1 Stakeholder engagement and the materiality matrix

2.1.1 THE MATERIALITY ASSESSMENT

In line with previous years, the Human Technopole Foundation maintained a dual operational approach for its materiality assessment also for the financial year 2024. On the one hand, following approval of HT's new Strategic Plan for the period 2024-2028, its strategic objectives (*materiality matrix for strategic objectives*) were assessed; on the other, the material issues that emerged from a double materiality assessment conducted in 2024, which identified ESG material issues and the related Impacts, Risks and Opportunities (IROs) (*ESG double materiality*), were deepened and enhanced. The two approaches are closely interrelated: each material topic identified and measured in the ESG materiality matrix is linked to at least one strategic objective mentioned in the '*materiality matrix for strategic objectives*' and to a UN 2030 Agenda sustainable development objective. The ESG materiality assessment highlights the most significant environmental, social and economic impacts of operations, according to **Impact Materiality** logics, and the risks and opportunities arising from the external context that influence HT's financial and economic dynamics, according to **Financial Materiality** logics.

2.1.2 MATERIALITY MATRIX FOR STRATEGIC OBJECTIVES

The main strategic objectives set out in the 2024-2028 Strategic Plan are as follows:

Promoting research focusing on the fundamental mechanisms underlying human biology, which are relevant to people's health and well-being

Supporting research by providing technologies to the Italian scientific community through shared research infrastructures, the National Facilities

Offering advanced scientific training to the Italian scientific community

Enabling the exploitation of the results of research and technological innovation through technology transfer

The figure below therefore shows HT's 4 strategic objectives and, for each of them, some of the results achieved or to be achieved in the coming years:

STRATEGIC OBJECTIVES	RESULTS
Promoting research focusing on the fundamental mechanisms underlying human biology, which are relevant to people's health and well-being	**25** research groups. **190** publications in international peer-reviewed journals. **50** new methods/tools/protocols tested. **76** cohort studies.
Supporting research by providing technologies to the Italian scientific community through shared research infrastructures, the National Facilities	**5** fully operational National Facilities. **>120** applications for access to National Facilities.
Offering advanced scientific training to the Italian scientific community	**82** PhD and **56** postdocs as at 31.12.24. Over **130** researchers from foreign institutions. **74** scientific seminars held at HT. **36** internal training courses organised by HT.
Enabling the exploitation of the results of research and technological innovation through technology transfer	**6** Technology Transfer training events. **62** stakeholders involved in Technology Transfer activities. **>400** participants in Technology Transfer-related events.

For further details on HT's strategic objectives, please refer to subchapter 2.3 '*Strategy*'.

The major stakeholders for HT fall within the following categories: **HT personnel, Founding Ministries, Industrial Associations, Local Institutions, Civil Society and Local Communities, Suppliers, Research Institutions and Communities, Lenders**.

The prioritisation of strategic objectives by the various stakeholders was evaluated and weighted according to the following parameters: dependence (importance of the relationship for the stakeholder), influence (importance of the relationship to HT) and urgency (timing the relationship), following the approach of the AA1000 standard.

Materiality by strategic objectives thus highlights:

- The strategic objectives on which HT has decided to focus its efforts, set out in its new 2024-2028 Strategic Plan, and that have been drafted and approved by HT's senior bodies. Such objectives play a central role and will be the main focus of HT's activities;
- The priorities assigned by stakeholders to the various strategic objectives, appropriately calibrated according to their importance. The upper part of the matrix, therefore, shows the topics for which stakeholders demand most commitment from HT in terms of investments, enhancement of existing activities and management systems or the formalisation of clear commitments and policies.

The strategic objectives prioritised as a result of the Human Technopole Foundation's dialogue with its various stakeholder categories are set out below:

PRIORITIES ACCORDING TO STAKEHOLDERS

STRATEGIC OBJECTIVES	PRIORITISATION
Promoting research focusing on the fundamental mechanisms underlying human biology, which are relevant to people's health and well-being	1st
Supporting research by providing technologies to the Italian scientific community through shared research infrastructures, the National Facilities	2nd
Enabling the exploitation of the results of research and technological innovation through technology transfer	3rd
Offering advanced scientific training to the Italian scientific community	4th

COMMENTS ON THE MATERIALITY MATRIX FOR STRATEGIC OBJECTIVES

The materiality matrix clearly highlights HT's strategic priorities according to stakeholders, reflecting a strong commitment to promoting scientific research and supporting the Italian scientific community by sharing research infrastructures.

1. **Promoting research on the fundamental mechanisms of human biology:**
   This objective, raised to the level of the highest priority, strongly reflects the centrality attached by stakeholders to basic research, recognised as a key driver for the advancement of human health and well-being. It is a clear sign of the shared commitment to promoting scientific knowledge that generates tangible benefits for people's lives.
2. **Supporting research through shared infrastructure, the National Facilities:**
   The second priority reflects the importance of providing highly professional skills along with advanced technologies and shared research infrastructure, such as the National Facilities. This objective is crucial for concretely strengthening the operational capacity of the Italian scientific community. It aims to ensure widespread and qualified access to cutting-edge technologies, expertise and shared research infrastructure, which represent real strategic hubs for innovation. Through the enhancement of highly professional skills and the integration of advanced technological resources, the aim is to create a research ecosystem that is more competitive, collaborative and ready to face the scientific and technological challenges of the future.
3. **Exploitation of the results of research and technological innovation:**
   The third priority focuses on technology transfer, emphasising the need to transform research results into concrete, applicable and marketable solutions. This objective is strategic for bridging the gap between science and industry, ensuring that innovations generated in laboratories can be translated into products, services and processes generating economic value.
4. **Offering advanced scientific training:**
   Lastly, the fourth priority is dedicated to the advanced training of the Italian scientific community, with a strong focus on enhancing human capital. This objective embodies HT's commitment to nurturing scientific talent at all stages, promoting structured and highly qualified career paths. Access to excellent training programmes, high-profile mentorship and stimulating research environments is essential to build a new generation of competitive researchers, prepared to tackle the most complex scientific challenges.

Stakeholder engagement, in addition to providing the necessary elements for the development of the materiality matrix, has allowed for an in-depth analysis of the degree of alignment of each individual stakeholder with HT's strategic objectives

The following table shows the prioritisation of the main strategic objectives for each stakeholder:

STRATEGIC OBJECTIVES	LOCAL INSTITUTIONS	CIVIL SOCIETY AND LOCAL COMMUNITIES	RESEARCH INSTITUTIONS/ COMMUNITIES	FOUNDING MINISTRIES	SUPPLIERS	LENDERS	HT PERSONNEL	PRIORITISATION
Promoting cutting-edge fundamental research on human biology and health	1	1	2	1	2	3	1	1st
Providing shared research infrastructure to the national scientific community	3	3	1	3	1	1	2	2nd
Offering advanced scientific training to scientists	4	4	3	4	3	2	4	4th
Enabling the exploitation of the results of research and technological innovation through technology transfer	2	2	4	2	4	4	3	3rd

Key: 1 indicates the highest priority, 4 indicates the lowest

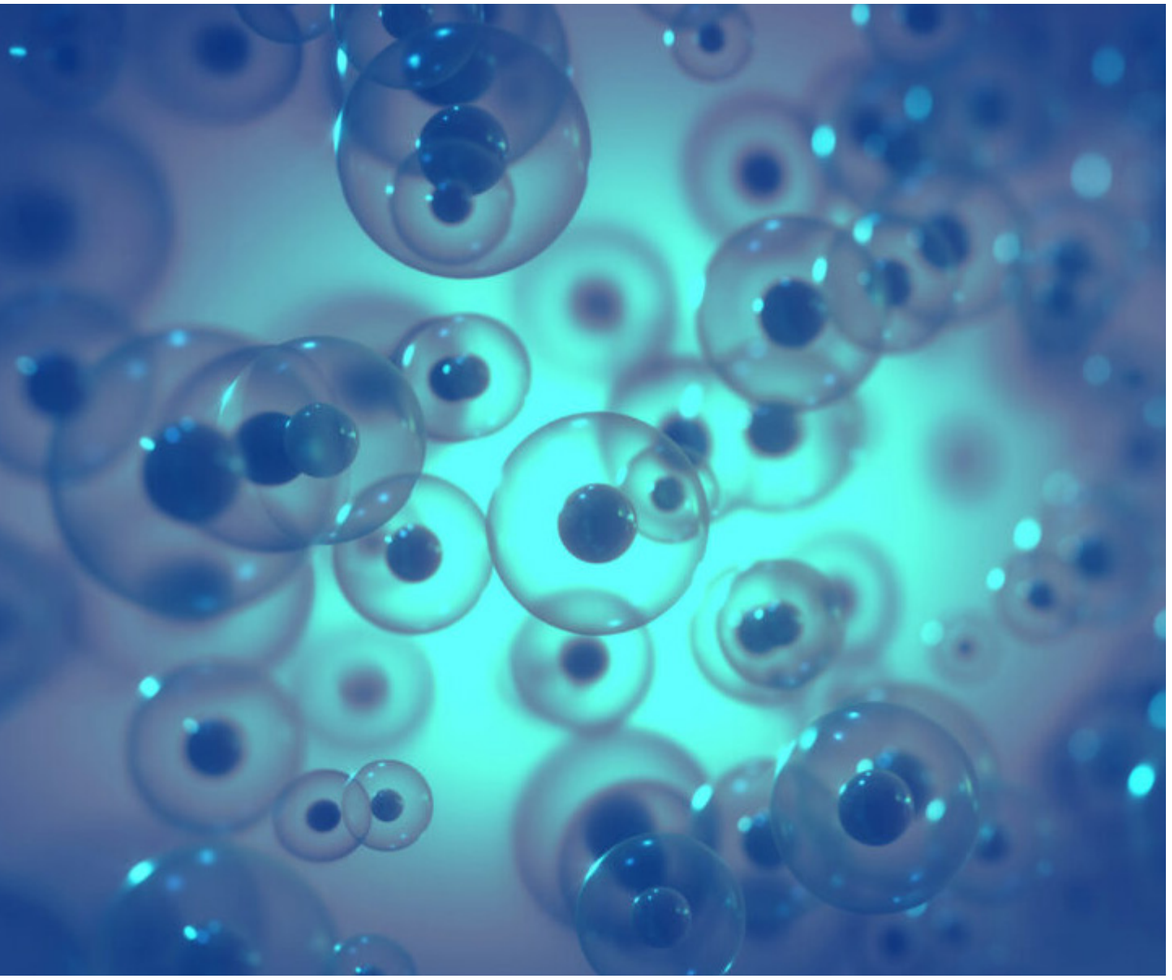
The following table highlights the main expectations of each stakeholder, the main strategic objectives, the capital impacted and HT's commitment to meeting such expectations:

Stakeholder	Expectations on HT	Link to main output capitals	HT's commitment
FOUNDING MINISTRIES	As founding and financing members, the Ministries require HT to carry out the activities envisaged in the Strategic Plan in accordance with its Articles of Association and following criteria of economy, effectiveness and transparency. They also demand transparent reporting on how funds are used, on the activities carried out and on the development prospects of HT	• Relational Capital • Intellectual Capital • Financial Capital	• Development of programmes and activities in line with the missions entrusted by the Ministries • Accountability in the use of resources and transparency in financial reports and disclosures • Involvement in defining policies for HT's growth
INDUSTRIAL ASSOCIATIONS*	Industrial associations demand that HT market the results of research by creating partnerships and promoting technology transfer	• Relational Capital • Financial Capital	• Development of partnerships and collaborations with external parties in the implementation of CITT (Centre for Innovation and Technology Transfer) activities
LOCAL INSTITUTIONS	Local institutions require HT to develop research programmes of scientific excellence and to promote technology transfer so as to contribute to the development of local territories in terms of global sustainability	• Relational Capital • Intellectual Capital • Financial Capital	• Development of scientific research programmes of excellence • Organisation of science dissemination events and initiatives • Development of scientific partnerships and collaborations and for technology transfer
CIVIL SOCIETY AND LOCAL COMMUNITIES	Civil society and local communities demand that HT contribute to the development of local territories also by creating partnerships	• Relational Capital • Intellectual Capital • Financial Capital	• Development of initiatives to raise awareness of scientific research • Enhancement of scientific reputation and sharing of research outputs • Development of scientific partnerships and collaborations and for technology transfer
SUPPLIERS	This stakeholder category requires HT to engage in the development of fair and valuable collaborations, contributing to the development of shared research infrastructures and the creation of scientific research programmes of excellence	• Relational Capital • Intellectual Capital • Infrastructural Capital	• Organisation and management of fair and transparent procurement, tendering and 'expression of interest' processes • Development of interactions aimed at creating partnerships in the MIND area also with regard to sustainability issues
HT PERSONNEL	Employees play a crucial role in the achievement of HT's strategic objectives and demand that HT understand their needs and aspirations, creating an optimal working environment for the development of scientific programmes of excellence, for the optimal management of research infrastructures and for career and learning opportunities	• Intellectual Capital • Human Capital • Infrastructural Capital	• Advanced scientific training and infrastructure management programmes • Employee involvement • Conventions and welfare programmes • Work-life balance initiatives • Internal communication campaigns • Code of Ethics • Development of gender equality programmes
RESEARCH INSTITUTIONS/ COMMUNITIES	Research institutions require HB to be available to create scientific partnerships, establishing joint projects and making the developed scientific infrastructure available	• Intellectual Capital • Infrastructural Capital • Relational Capital	• Creation of scientific partnerships and joint scientific research projects • Sharing of infrastructure and research tools • Optimal development and management of National Facilities
LENDERS	This stakeholder category demands that HT promote the optimal development and management of research infrastructures, as well as the enhancement of the skills of the scientific community, contributing to the career development of excellent researchers	• Intellectual Capital • Infrastructural Capital • Human Capital	• Sharing of infrastructure and research tools • Optimal development and management of National Facilities • Advanced scientific training and infrastructure management programmes

* for Industrial Associations, the results of the materiality assessment conducted in previous years are reported

2.1.3 ESG MATERIALITY ASSESSMENT

In 2024, the Human Technopole Foundation adopted an approach in accordance with the new European CSRD (Corporate Sustainability Reporting Directive) for materiality assessment, using the concept of Double Materiality. This approach means that sustainability issues can be considered from two perspectives: 'Impact Materiality' and 'Financial Materiality'. The 'Impact Materiality' perspective assesses the impacts of HT's operations on the environment and people. In contrast, the 'Financial Materiality' perspective considers sustainability aspects from the external environment that may be financially material for the Human Technopole Foundation. This new assessment method gives rise to the concepts of Impacts, Risks and Opportunities (IRO) for the Human Technopole Foundation.



The process of identifying IROs and material topics was divided into the following steps:

STEP 1: UNDERSTANDING THE CONTEXT OF THE ORGANISATION AND DEFINING POTENTIALLY MATERIAL TOPICS

This phase aims to thoroughly analyse HT's internal and external context, identifying potentially relevant sustainability issues to be included in the Integrated Report. This first phase consists of the following sub-activities:

1. **Benchmarking and internal documentation analysis:** è stata effettuata un'analisi comparativa con a comparative analysis was carried out with other research institutes and companies in the chemical-pharmaceutical sector to identify industry best practices. In addition, internal documents were examined, both with reference to the materiality assessments conducted in previous years and to the contents of HT's new 2024-2028 Strategic Plan, approved in December 2023;
2. **Identification of the Human Technopole Foundation's activities and collaborations:** the main HT activities stemming from its relationships with partners, suppliers, research institutions, universities and other relevant parties were mapped in order to understand the main actual and potential ESG impacts, whether generated or suffered;
3. **Mapping of potentially material topics:** the information gathered from previous activities made it possible to draw up an initial mapping of material topics. Depending on the topic, this mapping was submitted to specific internal persons responsible for collecting and managing the data and information required for reporting on HT's ESG dynamics.

STEP 2: IDENTIFICATION OF IROs RELATED TO MATERIAL TOPICS

The main objective of this phase is to identify IROs in relation to potentially material topics. To achieve this goal, the following activities were carried out:

1. **Interviews with the managers of HT's main internal functions:** all the managers of the main functions were involved through structured interviews, with the aim of having a direct and in-depth dialogue on each topic of interest. This allowed for a better understanding of the operational dynamics and strategic priorities of each function, gathering useful information, insights and observations for IRO drafting;
2. **Drafting of IROs in connection with strategic objectives:** the definition of IROs started from the analysis of HT's four strategic objectives. Following this analysis, 13 potentially material topics were identified, each of which was related to one or more strategic objectives, thereby clarifying the link between strategy and relevant ESG dynamics. During this process, direct input was sought from the managers of the various functions to ensure that the identified IROs consistently mirrored ESG dynamics related to HT's operations;
3. **IRO sharing and validation:** once drafted, IROs were shared with the relevant managers to gather their comments, confirm the relevance of such impacts, risks and opportunities, and ensure alignment with the overall strategic vision. Finally, the mapping of impacts, risks and opportunities was presented to the Sustainability Committee, an advisory body within the Supervisory Board.

STEP 3: IRO ASSESSMENT AND STAKEHOLDER ENGAGEMENT

The third phase involved the activation of a stakeholder engagement process aimed at assessing the relevance of the IROs associated with the potentially material topics identified. The different stakeholder categories were prioritised by HT's top management, giving different weight to the assessments of their various categories. Stakeholder engagement was structured as follows:

1. **Survey preparation:** surveys were prepared for each stakeholder category to initially assess the level of importance attached to the 13 potentially material topics identified. Subsequently, on the basis of the results collected, the same stakeholders were invited to give their views in more specific questionnaires on the impacts related to the topics that were most material for each category;
2. **Involvement of internal and external stakeholders:** assessment questionnaires were shared both inside and outside HT.

As for **Impact Materiality**, all identified stakeholder categories were involved, which are as follows for HT: **HT personnel, Founding Ministries, Industrial Associations, Local Institutions, Civil Society and Local Communities, Suppliers, Research Institutions and Communities, Lenders**.
In addition, one-to-one meetings were organised for some of HT's strategic stakeholders, where, in addition to the Impact Materiality assessment, a general comment on the Human Technopole Foundation's strategy and sustainability issues was requested. To assess impacts in accordance with the GRI reporting standard adopted in this Integrated Report, the significance and likelihood of occurrence of impacts was considered, taking into account the criteria of magnitude, extent and irremediable nature.

As regards **Financial Materiality**, the Finance area was involved, represented by HT's Head of Finance, who assessed risks and opportunities taking into account the following parameters: magnitude of the financial effect, direct financial impact, reputational impact, legal risk and likelihood of occurrence.

STEP 4: CONSOLIDATION OF RESULTS AND DETERMINATION OF TOPICS

In the final phase of the process, several activities were carried out to consolidate the results obtained until then and to clearly define the material topics for HT. The activities were organised as follows:

1. **Collection and consolidation of assessments:** the assessments provided by external stakeholders and internal managers were collected, taking into account the results of the prioritisation process of the different categories involved;
2. **Preparation of the double materiality matrix:** based on the data collected, the double materiality matrix was drawn up, which connected the materiality of the impacts generated by HT on ESG issues (impact materiality) with risk and opportunity assessments (financial materiality). To support a more detailed analysis, two types of matrix were prepared:
   - A general matrix, which considers the average stakeholder assessment of each impact in relation to HT's four strategic objectives;
   - Four specific matrices, each referring to a single strategic objective, including only the topics and impacts related to such objective.
3. **Materiality threshold definition:** a materiality threshold was established to identify priority topics and material topics for HT. This threshold was defined on the basis of the average of all stakeholder assessments, representing a result consistent with the data collected;
4. **Definition of the list of material topics:** starting from the matrix, the topics that exceeded the materiality threshold were identified and recognised as actually material for the organisation. The ensuing list is thus the basis for ESG reporting and for the integration of sustainability into HT's strategy;
5. **Sharing of the materiality matrix with HT managers:** in the final phase, the matrix and the list of material topics were shared with the managers of the functions involved in the process and with the Sustainability Committee, in order to collect any concluding remarks.

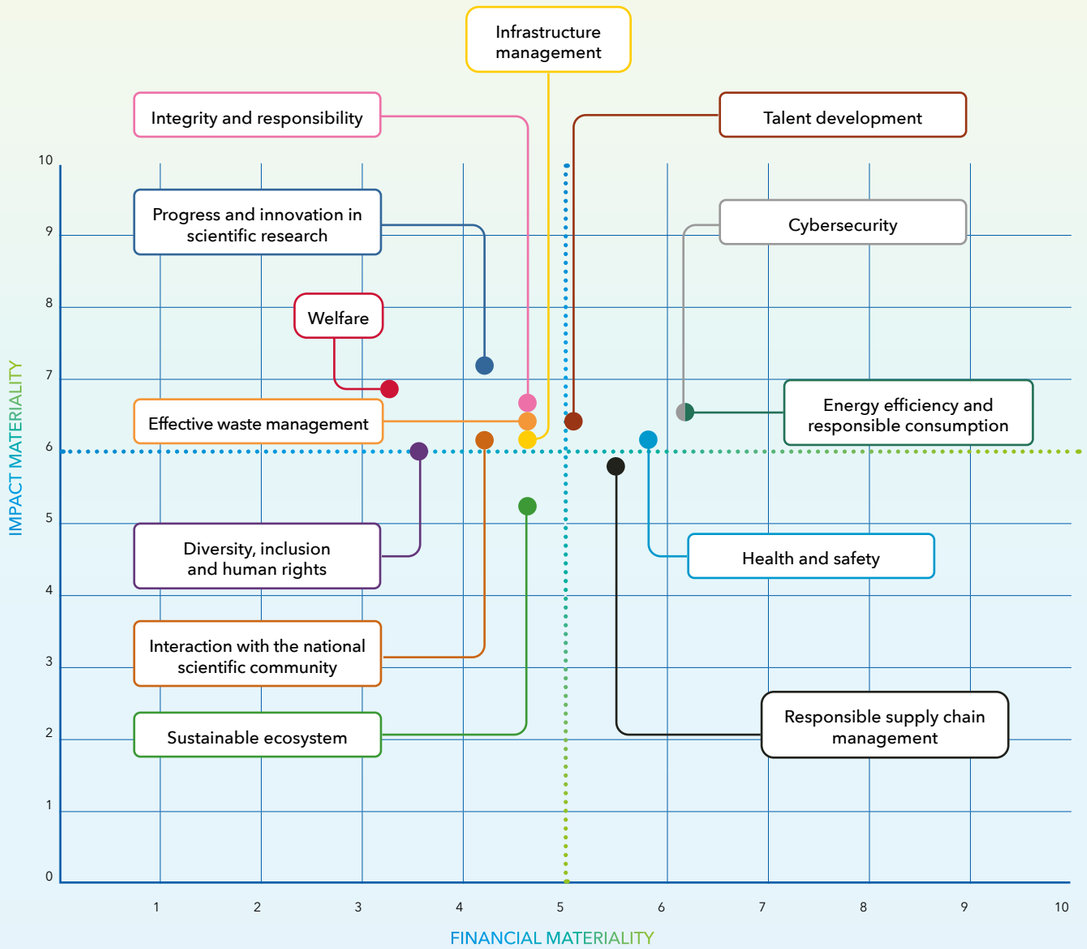
The following are the 13 material topics arising from the activities described above:

PROGRESS AND INNOVATION IN SCIENTIFIC RESEARCH
SUSTAINABLE ECOSYSTEM
HEALTH AND SAFETY
INFRASTRUCTURE MANAGEMENT
INTEGRITY AND RESPONSIBILITY
INTERACTION WITH THE NATIONAL SCIENTIFIC COMMUNITY
CYBERSECURITY
EFFECTIVE WASTE MANAGEMENT
ENERGY EFFICIENCY AND RESPONSIBLE CONSUMPTION
RESPONSIBLE SUPPLY CHAIN MANAGEMENT
WELFARE
TALENT DEVELOPMENT
DIVERSITY, INCLUSION AND HUMAN RIGHTS

The aggregate double materiality matrix is shown below, followed by the 4 detailed matrices. The latter show that the priority of the various material topics changes according to the strategic objective:

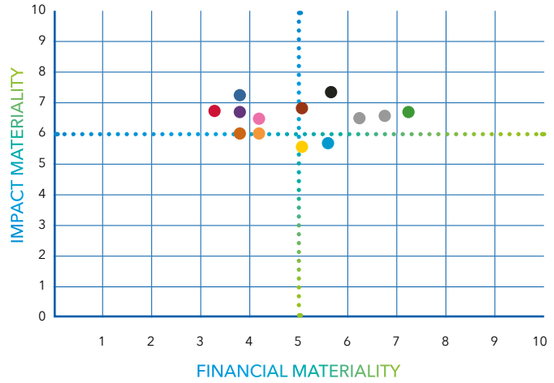
AGGREGATE MATERIALITY MATRIX

DOUBLE MATERIALITY MATRIX

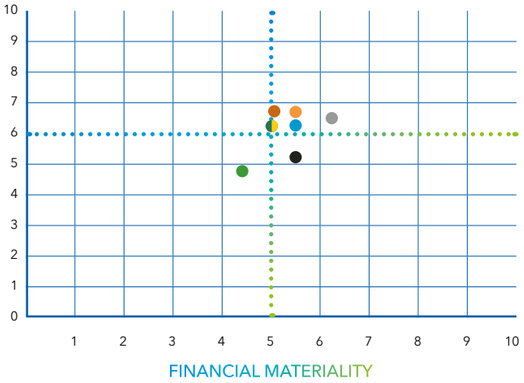


MATRICES FOR EACH STRATEGIC OBJECTIVE

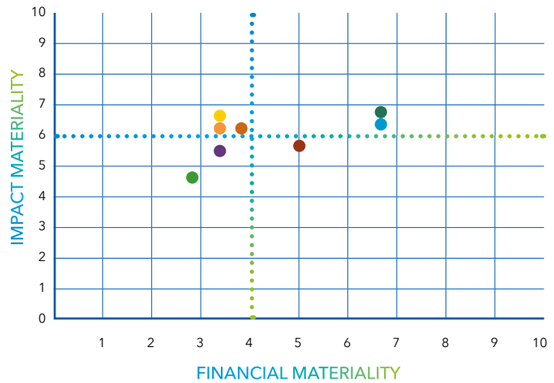
1st Promoting cutting-edge fundamental research on human biology and health



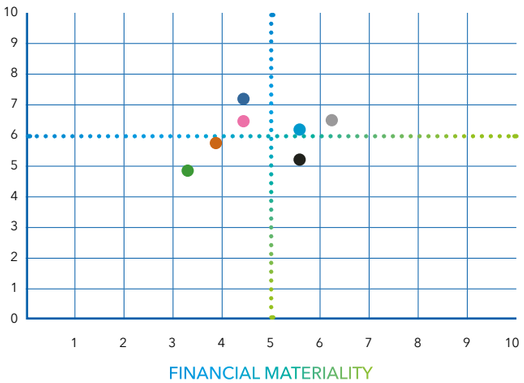
2nd Providing shared research infrastructure to the national scientific community



3rd Offering advanced scientific training to scientists



4th Enabling the exploitation of research results and technological innovation through technology transfer

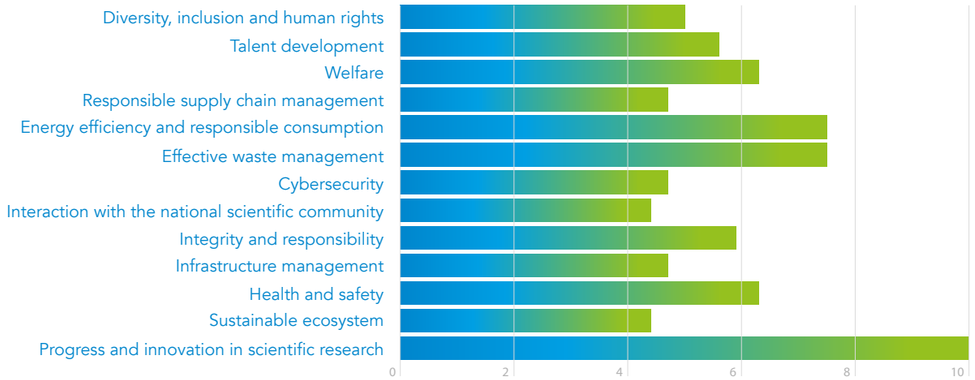


- Welfare
- Integrity and responsibility
- Talent development
- Diversity, inclusion and human rights
- Effective waste management
- Responsible supply chain management
- Progress and innovation in scientific research
- Infrastructure management
- Health and safety
- Interaction with the national scientific community
- Sustainable ecosystem
- Cybersecurity
- Energy efficiency and responsible consumption

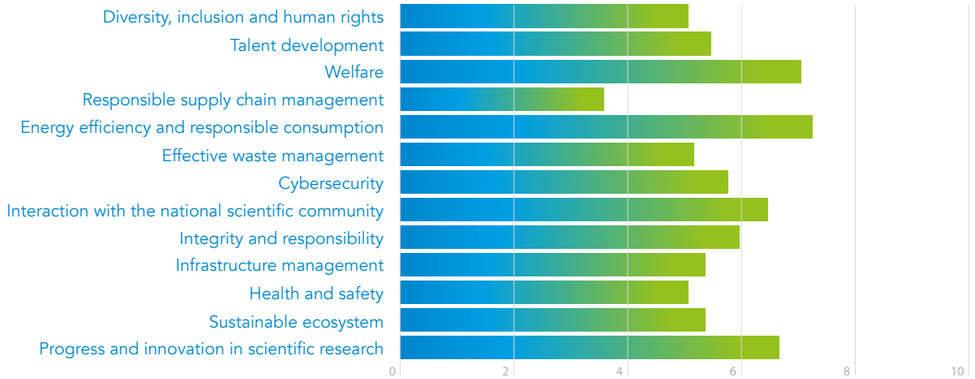
MATERIAL TOPICS FOR STAKEHOLDERS

Below is a representation of the assessment of material topics by each stakeholder:

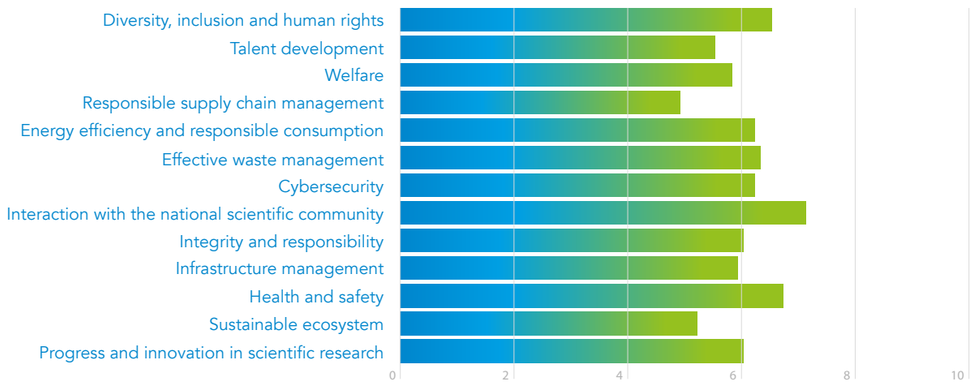
FOUNDING MINISTRIES



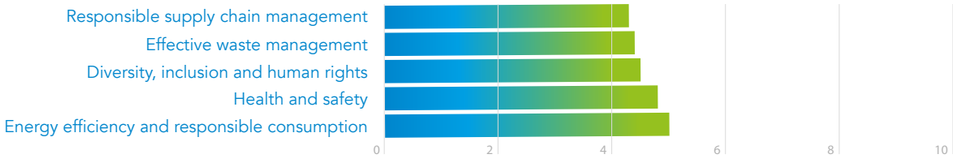
LOCAL INSTITUTIONS



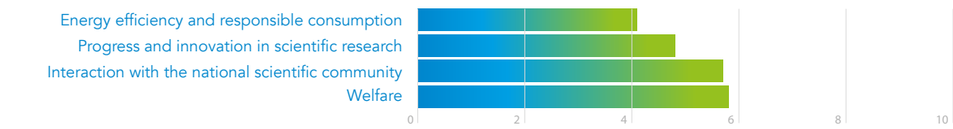
CIVIL SOCIETY AND LOCAL COMMUNITIES



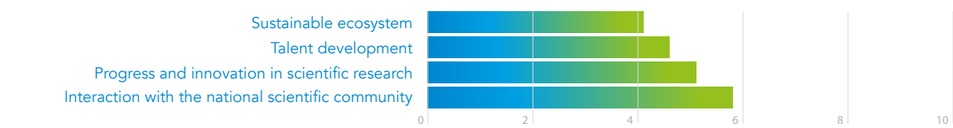
SUPPLIERS



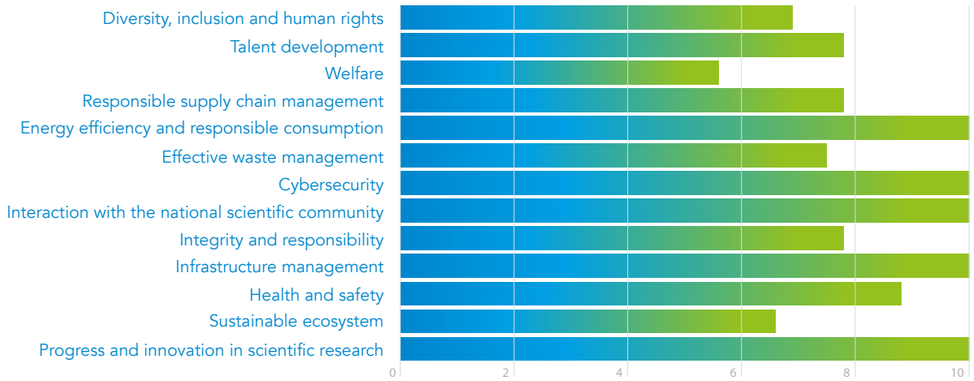
HT PERSONNEL



RESEARCH INSTITUTIONS/COMMUNITIES



LENDERS



The material topics and associated IROs are appropriately addressed in terms of metrics, management policies and activities in subchapter 2.4 '*Responsible and sustainable approach*' to which reference is made for more details.

2.2 Value creation model

This section of the Integrated Report presents a chart that illustrates how HT generates sustainable value for its stakeholders. HT's value creation model focuses on strategic objectives that direct its activities to the generation of different outputs, by using the different types of capital available to it.

If we look at the value creation model in depth, we can see that, even though HT has not yet been fully implemented and structured, it can already make a significant, sustainable and socially responsible contribution to the scientific community and the region through its activities. The research conducted by HT is high-level and with a high technological impact, in areas that are crucial in biomedical and health terms. This aspect contributes to bringing together researchers of national and international standing who provide high-value and in-depth research and results.

The infrastructure, technologies and scientific expertise available to HT are accessible to external scientists and will contribute significantly to meeting the needs of the scientific community.

The Convention signed with HT's three Founding Ministries, stipulating that a share of the public resources guaranteed to HT feed the so-called National Facilities, fits in perfectly with the strategic objective of providing shared infrastructure to the national scientific community.

Advanced scientific training programmes available both inside and outside HT are another of HT's strategic pillars. The fundamental principle guiding these training activities is to create a centre of excellence for the training of talented researchers in the biomedical sciences, making the most of the infrastructure available and providing broad access to HT's expertise, methods and resources.

For HT, human capital, i.e. its people, their skills and diversity, is a fundamental asset. In addition to human capital, HT uses the important resources deriving from its financial capital, which, as laid down by Article 1, paragraph 119 of Law No. 232 of 11 December 2016, consists of grants from the founding Italian Ministries and is increased by further contributions from different sources, such as grants or collaboration agreements.

Infrastructural capital, consisting of assets and facilities, as well as intellectual capital, i.e. HT's know-how, contribute to achieving the objectives of scientific excellence and the sharing of infrastructure with external scientists and other research institutions. Stakeholder relations, partnerships and collaborations with other research institutions, i.e. relational capital, are crucial to promote high-level scientific research and to foster innovation.

All these different types of capital make up the fundamental basis for creating value through strategic initiatives in the short, medium and long term.

INPUT CAPITAL

FINANCIAL CAPITAL
Public and private financial resources

HUMAN CAPITAL
Staff expertise, excellence and diversity

INFRASTRUCTURAL CAPITAL
Facilities, infrastructure, equipment

RELATIONAL CAPITAL
Stakeholder relations

INTELLECTUAL CAPITAL
The knowledge base and organisation of research

Effectiveness and efficiency of processes

Promoting cutting-edge fundamental research on human biology and health

- Research Centre for Genomics
- Research Centre for Neurogenomics
- Research Centre for Structural Biology
- Research Centre for Computational Biology
- Health Data Science
- Biophysical modelling and simulation
- Molecular Cell Biology
- Flagship Programmes:
  - Cardiovascular and metabolic diseases
  - Multimodal AI across scales
  - Immunogenomics and cancer
  - Neurodevelopmental conditions
  - Ciliopathies

Enabling the exploitation of the results of research and technological innovation through technology transfer

- Centre for Innovation and Technology Transfer
- Partnerships with pharmaceutical industries and companies
- Collaboration for R&D

Sustainability

SUSTAINABLE DEVELOPMENT GOALS

Scientific reputation

- National Facility for Genomics
- National Facility for Genome Engineering and Disease Modelling
- National Facility for Structural Biology
- National Facility for Light Imaging
- National Facility for Data Handling and Analysis

Providing shared research infrastructure to the national scientific community

Offering scientific training to scientists

- PhD Training / Internship
- Internal and external training
- Scientific Visiting Programmes
- Early Career Fellowship Programme

Partnerships & collaborations

OUTPUT

Scientific discoveries to develop new therapies

Attraction of further funding, including from private sources

Development and career opportunities

Scientific services and structures for the scientific community

Scientific collaboration, events and institutional initiatives

Innovative approaches for personalised and preventive medicine

Awareness and dissemination of science

GRI

2.2.1 FINANCIAL CAPITAL

GRI 2-6; GRI 201-1; GRI 201-4; GRI 204-1[1]

The pool of funds that is:

- **Available to an organisation for use in the production of goods or in the supply of services**
- **Obtained through financing, such as debt, equity or grants, or generated through operations or investments**

[1] For details see chapter 4.3. GRI Content Index.

The core funding for infrastructural development and the performance of HT's activities mostly comes from public funds allocated by the Italian government. These funds are provided for by Article 1, paragraph 121 of Law No. 232 of 11 December 2016, and, starting from the financial year 2021, are used taking into account also the provisions of the Agreement signed by HT on 30 December 2020 with its Founding Ministries, pursuant to Law No. 160/2019. The Agreement establishes that a quota of no less than 55% of the funds allocated by law is earmarked for what are known as National Facilities (NFs), i.e. for the construction, operation and maintenance of specific scientific infrastructures, identified through a multi-level consultation process, to be made available to external scientific projects.

HT's financial capital also includes government grants received pursuant to Article 49/bis of Decree-Law No. 34/2020, which set up the 'Centre for Innovation and Technology Transfer in the Life Sciences' (CITT). The aforementioned Decree-Law, converted with amendments by Law No. 77 of 17 July 2020, provides that the Human Technopole Foundation must adopt specific organisational measures for the use of the funds allocated for this purpose.

Finally, HT's financial capital also consists of resources from additional financing and contributions, some of which have already been formalised in the current and previous financial years, from sources other than state transfers. In the medium to long term, and in line with the progressive institutional consolidation and development of its scientific research activities, HT is expected to further increase its ability to attract additional financial resources, in a variety of forms and ways, from different public and private, national and international stakeholders.

HT's assets are divided into an Endowment Fund, which cannot be disposed of and is tied to the pursuit of its purposes laid down in its Articles of Association, and an Management Fund intended to fund its operating expenses.

The HT Endowment Fund consists of a restricted fund for the start-up of HT's scientific project, initially allocated to the Istituto Italiano di Tecnologia (IIT) for an original amount of €79,900,000. This fund was subsequently transferred to the Human Technopole Foundation, both in the form of financial resources and assets in kind, in the amount of €77,230,557. The difference between the original amount of the fund and the amount transferred to the Human Technopole Foundation corresponds to the costs incurred by IIT for the start-up of the project. As regards the Management Fund, paragraph 121 of founding Law No. 232 of 11 December 2016 authorises spending on the HT project as follows: €10 million for 2017, €114.3 million for 2018, €136.5 million for 2019, €112.1 million for 2020, €122.1 million for 2021, €133.6 million for 2022 and €140.3 million starting from 2023. This grant is paid out in line with the progress of the Human Technopole project.

In addition, the Management Fund also includes the contributions covered by Article 49/bis of Decree-Law 34/2020, which grants HT €10 million for 2020 and €2 million per year as from 2021 to promote and finance the 'Centre for Innovation and Technology Transfer'.

With the approval of the 2025 Budget Law (207/2024), the annual contribution granted to HT was reduced to €126.27 million for the three-year period 2025-2027 and 1 million for activities related to the Centre for Innovation and Technology Transfer.

2024 RESULTS

At year-end 2024, the Management Fund was recognised within the Human Technopole Foundation's equity in the amount of €530,903,946. This fund includes the contributions indicated in Article 1, paragraph 121 of Law No. 232 of 11 December 2016, relating to the years 2018, 2019, 2020, 2021, 2022, 2023 and 2024, for the part not spent as at the reporting date. In addition, it includes the share, yet to be used, of the contributions to the 'Centre for Innovation and Technology Transfer in the Life Sciences'

This fund consists of three different items:

- the Management Fund for internal research activities amounting to €245,394,766;
- the Management Fund for infrastructure hub activities (known as National Facilities) amounting to €271,215,855;
- the Management Fund for the Centre for Innovation and Technology Transfer amounting to €14,293,324.

The table below shows the changes in the Management Fund and its allocation between the HT quota and the National Facilities quota for a total of €564,977,073:

PERIOD	GRANTS PURSUANT TO LAW 232/2016	GRANTS USED							GRANTS TO BE USED	OF WHICH	
		2018	2019	2020	2021	2022	2023	2024		HT	NATIONAL FACILITIES
2017	10,000,000	137,790	4,372,803	5,489,407	-	-	-	-	-	-	-
2018	114,300,000	-	-	86,929,620	25,981,789	-	-	-	1,388,591	1,388,591	-
2019	136,500,000	-	-	-	-	-	-	-	136,500,000	136,500,000	-
2020	112,100,000	-	-	-	22,760,586	-	-	-	89,339,414	89,339,414	-
2021	122,100,000	-	-	-	51,233,642	-	-	-	70,866,358	3,831,337	67,035,021
2022	133,600,000	-	-	-	-	59,979,966	-	-	73,620,034	-	73,620,034
2023	140,300,000	-	-	-	-	-	58,703,504	-	81,596,496	5,032,947	76,563,549
2024	140,300,000	-	-	-	-	-	-	28,633,819	111,666,181	36,121,574	75,544,607
TOTAL	**909,200,000**	**137,790**	**4,372,803**	**92,419,027**	**99,976,017**	**59,979,966**	**58,703,504**	**28,633,819**	**564,977,073**	**272,213,863**	**292,763,211**

* the figure relating to the 2024 utilisation, amounting to €28,633,819, refers to the report submitted to the MEF for the period 01.01.2024_30.06.2024

The table below shows the changes in the CITT management fund:

PERIOD	GRANTS PURSUANT TO ART. 49-BIS LAW DECREE 34/2020 (CONV. LAW NO. 77/2020)	GRANTS USED							GRANTS TO BE USED
		2018	2019	2020	2021	2022	2023	2024	
2020	10,000,000	-	-	90,775	422,857	254,939	460,711	477,395	8,293,324
2021	2,000,000	-	-	-	-	-	(2,000,000)	-	-
2022	2,000,000	-	-	-	-	-	-	-	2,000,000
2023	2,000,000	-	-	-	-	-	-	-	2,000,000
2024	2,000,000	-	-	-	-	-	-	-	2,000,000
TOTAL	**18,000,000**	**-**	**-**	**90,775**	**422,857**	**254,939**	**(1,539,289)**	**477,395**	**14,293,324**

The grant to CITT for 2020 amounted to €10,000,000 and to €6,000,000 for 2022, 2023 and 2024. As a result of the charges incurred, it amounted to €14,293,324 at 31.12.2024.

The 2024 financial year closed with a profit of €5,971, after provisions for corporate income tax (IRES) and regional production tax (IRAP) of €493,601. Depreciation, amortisation and write-downs of tangible and intangible assets in the amount of €19,182,497 were recognised.

The activities carried out in 2024 resulted in total financial commitments of €71,565,515. These commitments resulted in the recognition in the financial statements of operating grants and capital grants in the amount of over €79,790,539, relating to the portion pertaining to the year, and approximately €141,430,571 in deferred income, for the portion of commitments pertaining to future years.

In financial terms, revenues of approximately €241,598,1035 in grants were recognised in 2024 against cash outlays of approximately €73,111,687. Revenues mainly refer to grants received from the Ministry of Economy and Finance totalling €235,634,439, including residual amounts from previous years.

EURO	31/12/2024	31/12/2023
VALUE OF PRODUCTION	79,790,539	66,609,077
EBITDA	20,058,846	16,923,524
OPERATING PROFIT	501,611	730,815
NET RESULT	5,971	35,339
FIXED ASSETS	131,132,156	131,361,161
TOTAL EQUITY	608,305,587	541,562,132
NET FINANCIAL POSITION	588,052,939	419,566,523

RECLASSIFIED PROFIT AND LOSS ACCOUNT

The value of production, totalling €79,790,539, includes grants made by the MEF for a total of €75,836,295, of which €31,604,544 relating to operating grants and €16,539,355 to capital grants attributable to HT's activities; in addition, operating grants of €477,395 relate to the activities of the new Centre for Innovation and Technology Transfer (CITT) and €27,215,001 to the National Facilities. Lastly, grants from other entities (non-MEF funds) in the amount of €3,660,982 and 'other revenues' in the amount of €293,263, mainly referring to revenues from commercial activities, which took the shape of the rental of space in Palazzo Italia, as well as the quota of revenues from the scientific project financed by the Welcome Sanger Institute, were recognised:

Below is the reclassified Profit and Loss Account (in Euro), compared with the previous year:

EURO	31/12/2024	31/12/2023	CHANGE
VALUE OF PRODUCTION	79,790,539	66,609,077	13,181,462
EXTERNAL COSTS	35,112,253	28,332,216	6,780,037
ADDED VALUE	**44,678,287**	**38,276,861**	**6,401,426**
PERSONNEL EXPENSE	24,619,441	21,353,337	3,266,104
EBITDA	**20,058,846**	**16,923,524**	**3,135,322**
AMORTISATION, DEPRECIATION AND WRITE-DOWNS AND OTHER PROVISIONS	19,557,235	16,192,709	3,364,526
OPERATING PROFIT	**501,611**	**730,815**	**(229,204)**
NON-CHARACTERISTIC INCOME	-	-	-
FINANCIAL INCOME AND EXPENSE	2,039	1,391	648
ORDINARY RESULT	**499,572**	**729,424**	**(229,852)**
REVALUATIONS AND WRITE-DOWNS	-	-	-
PRE-TAX PROFIT	**499,572**	**729,424**	**(229,852)**
INCOME TAXES	493,601	694,085	(200,484)
NET RESULT	**5,971**	**35,339**	**(29,368)**

RECLASSIFIED BALANCE SHEET

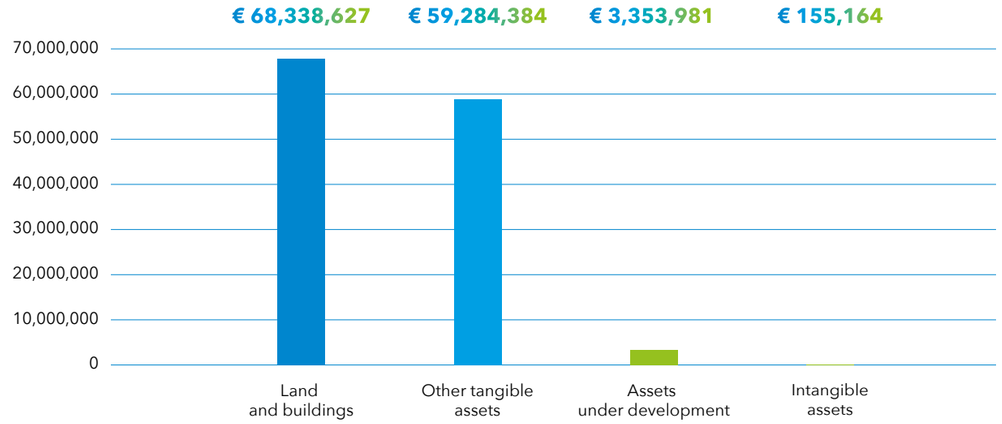
The main changes in the balance sheet during the financial year 2024 are summarised in the table below. Assets and liabilities have been duly reclassified in order to give evidence of invested capital, sources of funding and their determinants.

The table shows the figures for the financial year 2024 compared with the previous year:

EURO	31/12/2024	31/12/2023	CHANGE
NET INTANGIBLE FIXED ASSETS	155,164	173,257	(18,093)
NET TANGIBLE FIXED ASSETS	130,976,992	131,187,904	(210,912)
EQUITY INVESTMENTS AND OTHER FINANCIAL ASSETS	-	-	-
CAPITAL ASSETS	**131,132,156**	**131,361,161**	**(229,005)**
INVENTORIES	106,569	82,084	24,485
TRADE RECEIVABLES	207,835	116,526	91,308
OTHER RECEIVABLES	57,076,284	151,204,102	(94,127,818)
ACCRUED INCOME AND PREPAID EXPENSES	1,548,904	1,593,069	(44,165)
SHORT-TERM OPERATING ASSETS	**58,939,592**	**152,995,781**	**(94,056,189)**
TRADE PAYABLES	18,611,451	16,227,267	2,384,184
ADVANCES	-	-	-
TAX AND SOCIAL SECURITY PAYABLES	4,678,881	3,382,932	1,295,949
OTHER PAYABLES	2,322,759	1,931,870	390,889
ACCRUED EXPENSES AND DEFERRED INCOME	141,430,571	139,007,012	2,423,558
SHORT-TERM OPERATING LIABILITIES	**167,043,662**	**160,549,081**	**6,494,580**
NET WORKING CAPITAL	**23,028,087**	**123,807,861**	**(100,779,774)**
SEVERANCE PAY	2,110,584	1,495,397	615,187
TAX AND SOCIAL SECURITY DEBTS (BEYOND THE NEXT FINANCIAL YEAR)	-	-	-
OTHER NON-CURRENT LIABILITIES	664,854	316,854	348,000
MEDIUM- AND LONG-TERM LIABILITIES	**2,775,438**	**1,812,251**	**963,187**
INVESTED CAPITAL	**20,252,648**	**121,995,609**	**(101,742,961)**
EQUITY	(608,305,587)	(541,562,132)	(66,743,455)
NET FINANCIAL POSITION IN THE MEDIUM/LONG-TERM	-	-	-
SHORT-TERM NET FINANCIAL POSITION	588,052,939	419,566,523	168,486,416
OWN FUNDS AND NET FINANCIAL DEBT	**(20,252,648)**	**(121,995,609)**	**101,742,961**

The table below shows the breakdown of fixed assets as at 31 December 2024 as well as changes from the previous year:

FIXED ASSETS 2024



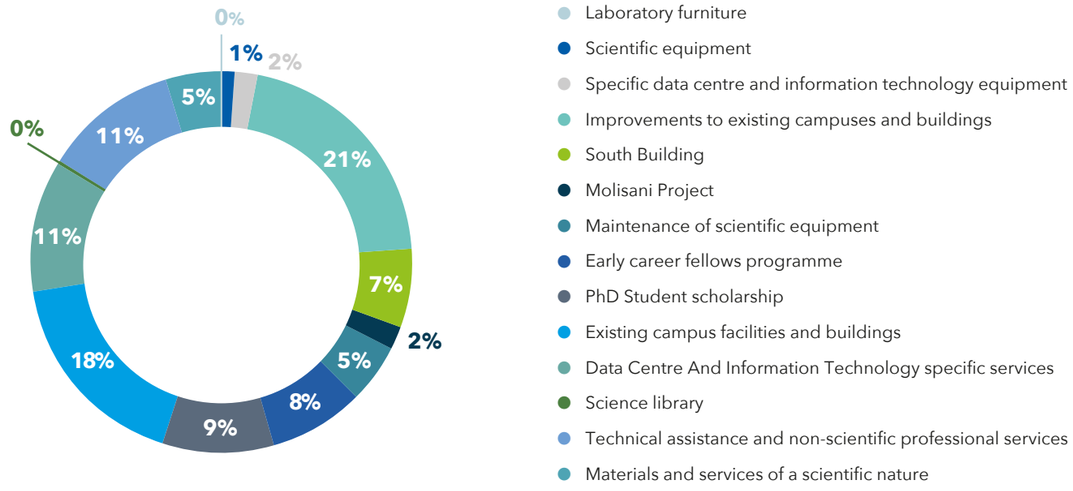
EURO - FIXED ASSETS	31/12/2024	31/12/2023	INVESTMENTS
TANGIBLE ASSETS			
LAND AND BUILDINGS	68,338,627	69,189,610	(850,983)
PLANT AND MACHINERY	2,698,941	2,403,592	295,349
INDUSTRIAL AND COMMERCIAL EQUIPMENT	32,348,744	29,867,201	2,481,543
OTHER ASSETS	24,177,789	24,886,228	(708,439)
ASSETS UNDER DEVELOPMENT	3,353,981	4,782,363	(1,428,382)
OTHERS	58,910	58,910	-
INTANGIBLE ASSETS			
CONCESSIONS, LICENCES, TRADEMARKS AND SIMILAR RIGHTS	65,421	70,996	(5,575)
CONCESSIONS, LICENCES, TRADEMARKS AND SIMILAR RIGHTS	5,823	-	5,823
OTHERS	83,920	102,261	(18,341)

The item 'Land and Buildings' refers to the acquisition of the buildings owned by HT, namely Palazzo Italia, the US6/North Pavilion and the Cardo/South Pavilion as well as the related repurposing. This item also includes the purchase of the land in 2023, on which the South Building and the Technological Hub will be built.

COMMITMENTS IN 2024

The graph below shows the breakdown of the commitments as at 31 December 2024, not stated in the Balance Sheet, which will be completed in the coming years, totalling €51,010,636.

COMMITMENTS IN 2024



In addition, as at 31 December 2024, HT recognised commitments for ongoing purchase procedures amounting to €20,554,879.

ECONOMIC VALUE GENERATED AND DISTRIBUTED

The table below gives details of how HT generates and distributes value:

	ECONOMIC PERFORMANCE		
DETERMINATION OF ECONOMIC VALUE DIRECTLY GENERATED AND DISTRIBUTED [€]	**2022**	**2023**	**2024**
OTHER REVENUE	65,779,053	66,609,077	79,790,539
FINANCIAL INCOME AND INTEREST	-	-	2,039
ECONOMIC VALUE GENERATED	**65,779,053**	**66,609,077**	**79,792,578**
OPERATING COSTS	34,628,869	28,357,687	35,136,738
EMPLOYEE REMUNERATION	17,652,328	21,353,337	24,619,441
PUBLIC ADMINISTRATION REMUNERATION	617,441	694,085	493,601
REMUNERATION OF LENDERS	3,313	-	-
ECONOMIC VALUE DISTRIBUTED	**52,901,951**	**50,405,109**	**60,249,780**
AMORTISATION/DEPRECIATION, WRITE-DOWNS AND ADJUSTMENTS	12,837,770	15,853,076	19,182,497
PROVISIONS FOR RISKS AND OTHER PROVISIONS	1,301	315,553	350,253
PROFIT FOR THE YEAR ALLOCATED TO RESERVES	38,031	35,339	10,049
ECONOMIC VALUE RETAINED	**12,877,102**	**16,203,968**	**19,542,799**

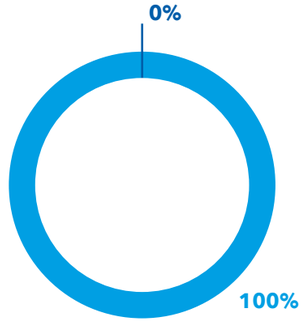
In the year ended 31 December 2024, HT generated value of €79,792,578, up by about 20% compared with 2023 mainly due to operating grants and capital grants received from the MEF, as well as operating grants related to CITT and the National Facilities. The economic value generated was supplemented by other grants for scientific projects as well as, to a lesser extent, other revenues from commercial activities.

The Economic Value Distributed among the stakeholders was €60,249,780 and is attributable, for approximately 58%, to suppliers (costs for the purchase of materials, services, etc.) and, for approximately 41%, to employees (cost of wages and salaries). The remainder (about 1%) is the remuneration of the public administration for taxes and duties.

The Economic Value Retained, on the other hand, is almost entirely attributable to depreciation, amortisation and write-downs, adjustments and provisions for risks, and only a minimal part is attributable to self-financing (operating surplus) from commercial activities.

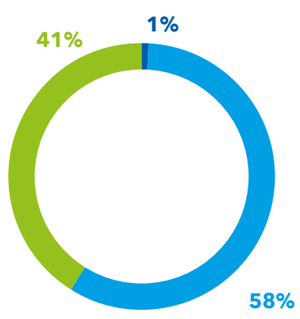
ECONOMIC VALUE GENERATED AND DISTRIBUTED IN 2024 AT A GLANCE

ECONOMIC VALUE GENERATED €79.792 M



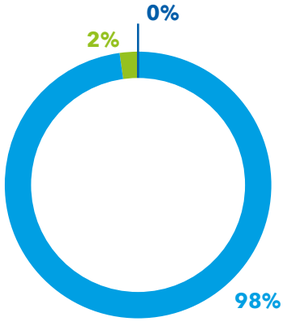
- Financial income and interest
- Other revenue

ECONOMIC VALUE DISTRIBUTED €60.249 M



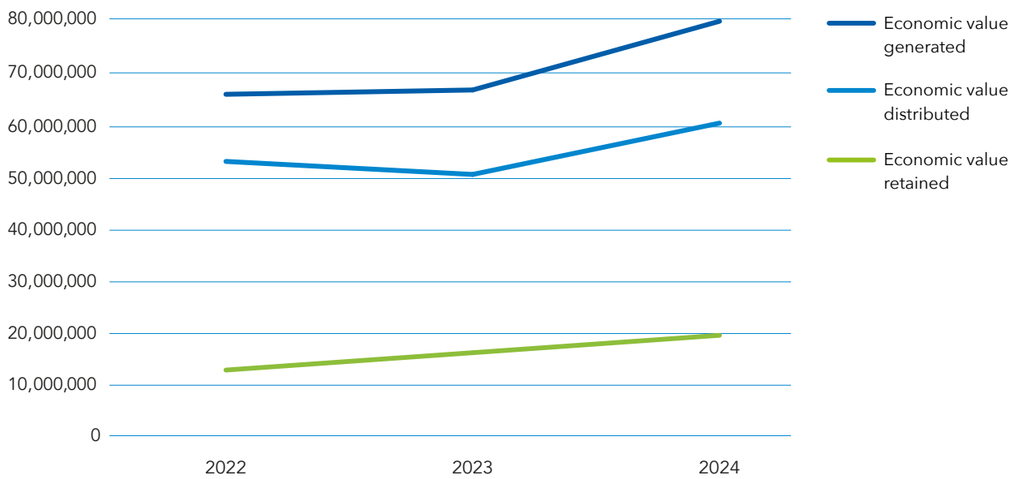
- Public Administration remuneration
- Operating costs
- Employee remuneration

ECONOMIC VALUE RETAINED €19.542 M



- Profit for the year allocated to reserves
- Amortisation/depreciation, write-downs and adjustments
- Provisions for risks and other provisions

ECONOMIC VALUE GENERATED AND DISTRIBUTED [€]



ADDITIONAL FINANCING

During 2024, the Human Technopole Foundation was able to attract additional financing other than that provided by the government for more than €11,400,000. These are grants and funding awarded to HT within the framework of scientific projects and collaboration agreements.

The tables below give a list of these resources and their amount, the related project/collaboration and the financing entity.

For the sake of completeness, data on the early months of 2025 are also given:

RESEARCH CENTRE/AREA	FUNDING ENTITY	TITLE OF RESEARCH PROJECT	AMOUNT (EURO)
Comms Events	VARIOUS	Donations - PhD & PD Symposium 25/6/2024	5,500
Computational Biology	HEU-ERC	DARC MATTER Dynamics of Adaptation and Resistance in Cancer: MApping and conTrolling Transcriptional and Epigenetic Recurrence	1,995,582
Computational Biology	HEU-ERC	DepShock Transcriptional footprints of cancer dependency shock as a computational tool for early anti-cancer drug discovery	1,999,455
Computational Biology	WELLCOME SANGER INSTITUTE	Open Targets Perturbation Catalogue	190,021
Computational Biology	AIRC	Exploiting Cancer Dependency Shock footprints for the discovery of therapeutic biomarkers and combinatorial targets	728,000
Computational Biology	HEU-MSCA	Exploring Novel Drivers of Anti-Microbial Resistance ENDAMR	259,437
Genomics - Functional	HEU-MSCA	PRUNE - Uncovering the Proteomic Radial organization within the Eukaryotic Nucleus	172,750
Genomics - Functional	MUR	Comprehensive deciphering of coding and non-coding RNA variants in human cancers Decoding-RNA	600,000
Genomics - Functional	RNA Society		1,350
Genomics - Population	TELETHON-CARIPLO	Unravelling the role of the fusion partner LNP1 in NUP98-rearranged Acute Myeloid Leukemia	107,580
Genomics - Population	DIGITAL EU	GoE - Genome of Europe	1,120,718
Genomics - Population	MUR	Personalised Rna-Oriented MedIcINE in Italy Novel Therapeutics PROMINENT	178,363
Genomics - Population	SILICON VALLEY COMMUNITY FOUNDATION (SVCF) - CHAN ZUCKERBERG INITIATIVE (CZI)	Multiple instance learning to detect disease implicated cell-types	99,053
Genomics - Population	AIRC	Tailoring precision Immunotherapy to pediatric Acute Myeloid Leukemia	998,003
Health Data Science	HEU-MSCA	TinyTrend - Revealing Environmental Causes of Preterm Births in a Quasi-Experimental Framework	172,750
Health Data Science	ASTRAZENECA	Donation COV/DRisk/D	25,000
Molecular Cell Biology	EMBO	From molecules to organisms: An integrative view of cell biology	41,500
Neurogenomics	BBRF	Investigating Autism Spectrum Disorders Leveraging Brain Assembloids And Single-Cell Omics: The CHDS Paradigm	63,636
Neurogenomics	CARIPLO	Targeting ADA-SCID neuropathology in a patient-derived organoid platform	199,949
Neurogenomics	TELETHON-CARIPLO	SP5 as novel mediator of CAH multi-organ pathogenesis: from functional elucidation to therapeutic repurposing	110,000
Neurogenomics	MUR	Dissecting HSV-1 Latency and Reactivation using Trigeminal Organoids 3D HSV	1,326,201
NF Genome Engineering	HEU	MPS_NOVA Hub: Advanced Microphysiological Systems and Pluripotent Stem Cell Technologies to Unveil Chronic Disease Mechanisms and Host-Microbe Interactions	182,125
Structural Biology	HFSP	Unravelling the molecular mechanisms of thyroglobulin endocytosis mediated by the R2 receptor	189,960
Structural Biology, Computational Biology	HEU-MSCA	European Training Program for Deconvolution of Multi-scale Cilia Function in Health and Disease by Integrating Machine Learning-AI Approaches - Cilia-AI	518,875
Training	VARIOUS	Sponsorship W25-01	65,000
Training	VARIOUS	Sponsorship Neuroconference 19-21 May 2025	80,000
TOTAL GRANTS FORMALISED IN 2024			

RESEARCH CENTRE/AREA	FUNDING ENTITY	TITLE OF RESEARCH PROJECT	AMOUNT (EURO)
Genomics - Functional	HEU-MSCA	Multi-dimensional mapping of lineage specific transcription factors through time and space GRADMAP	193,643
TOTAL GRANTS FORMALISED IN 2025 (AS AT 15 APRIL 2025)			

PROCUREMENT AND PURCHASES 2024

In 2024 HT was engaged in the following activities for the procurement of goods and services:

TYPE OF PURCHASE	VALUE PURCHASED (IN EURO)
PURCHASES OUTSIDE PROCEDURE UNDER LEGISLATIVE DECREE 36/2023	42,067
PURCHASES UNDER LEGISLATIVE DECREE NO. 36/2023 - PROCUREMENTS ABOVE THRESHOLD	52,078,068
PROCUREMENT UNDER LEGISLATIVE DECREE NO, 36/2023 - PROCUREMENTS UNDER THRESHOLD	19,565,883
TOTAL	**71,686,017**

In 2024, about 516 purchase orders were finalised with a significant share of sub-threshold purchases.

Trade payables, as at 31 December 2024, were composed geographically as follows:

- 94.74% Italian suppliers;
- 1.71% EU suppliers;
- 3.55% non-EU suppliers.

The evidence required under GRI-204 is given below along with a comparison with previous years:

GRI 204-1[2]	PROCUREMENT PRACTICES		
	2022	2023	2024
TOTAL TRADE PAYABLES	**€ 20,482,890**	**€ 16,227,267**	**€ 18,611,450**
LOCAL TRADE SUPPLIERS (ITALY)	€ 20,126,349	€ 14,623,896	€ 17,632,452
EU TRADE PAYABLES	€ 36,788	€ 673,945	€ 318,513
NON-EU TRADE PAYABLES	€ 319,752	€ 929,426	€ 660,485
PERCENTAGE OF LOCAL SUPPLIERS (ITALY)	*98.26%*	*90.12%*	*94.74%*
PERCENTAGE OF EU SUPPLIERS	*0.18%*	*4.15%*	*1.71%*
PERCENTAGE OF NON-EU SUPPLIERS	*1.56%*	*5.73%*	*3.55%*

[2] For details see chapter 4.3. GRI Content Index.

GRI

2.2.2 HUMAN CAPITAL

GRI 2-7; GRI 2-8; GRI 2-17; GRI 401-1; GRI 401-2; GRI 403-5; GRI 403-8; GRI 403-9; GRI 404-1; GRI 404-2; GRI 404-3; GRI 405-1[3]

People's expertise, capabilities or experience and their motivation to innovate, including their:

- Alignment with and support for the organisation's governance framework, risk management approach and ethical values
- Ability to understand, develop and implement an organisation's strategy
- Loyalty and motivation to improve processes, goods and services, including their ability to manage and collaborate

[3] For details see chapter 4.3. GRI Content Index.

In the period 2024-2027, HT's HR strategy is focused on four main objectives: organisational excellence, cultural transformation, talent management and improvement of HR services.

These objectives take the shape of key initiatives, including the implementation of a job levelling system, conducting employee engagement surveys, transforming HR functions for greater efficiency, strengthening corporate branding to attract talent, adopting SAP SuccessFactors for human capital management, and assessing skills to shape training.

HT's HR strategy therefore aims to improve talent attraction and retention, employee engagement and operational efficiency. The initiatives implemented not only respond to current challenges, but also create a solid basis for the long-term sustainable development of the organisation.

The guiding principles of the strategy of HT's Human Resources area are as follows:

When recruiting staff, the Human Technopole Foundation adopts the principles of publicity, transparency, protection of gender equality and non-discrimination. It is constantly striving to create research groups that are as diverse as possible, to encourage the exchange of ideas and achieve the best results in each field. For this reason, HT selects and welcomes researchers of all levels and with diverse experiences: from young PhD students to experienced scientists leading highly competitive research centres.

The table below shows the heads of HT's research areas as at 31 December 2024:

HEADS OF HT'S RESEARCH AREAS AS AT 31 DECEMBER 2024		
Computational Biology	**ANDREA SOTTORIVA**	Head of the Computational Biology Research Centre. He is Director of the Centre for Evolution and Cancer and Leader of the Evolutionary Genomics and Modelling Team at the Institute of Cancer Research in London
Structural Biology	**GAIA PIGINO**	Biologist, Associate Head of the Structural Biology Research Centre. She is also a research group leader and faculty member at the Max Planck Institute of Molecular Cell Biology and Genetics in Dresden (Germany) and since 2022 a member of the European Molecular Biology Organisation (EMBO)
Structural Biology	**ALESSANDRO VANNINI**	Molecular biologist and biochemist, Head of the Structural Biology Research Centre, after nearly eight years in the UK as Principal Investigator and Deputy Head of Division at the Institute of Cancer Research in London. He has been member of the European Molecular Biology Organisation (EMBO) since 2023
Functional Genomics	**PIERO CARNINCI**	Geneticist, Head of the Genomic Research Centre, Functional Genomics Programme. Team Leader of the Laboratory for Transcriptome Technology, Director of the Division of Genomic Technologies and Deputy Director of the RIKEN Centre for Integrative Medical Sciences in Yokohama (Japan); he is also a member of the European Molecular Biology Organisation (EMBO)

HEADS OF HT'S RESEARCH AREAS AS AT 31 DECEMBER 2024		
Medical and Population Genomics	**NICOLE SORANZO**	Geneticist, Head of the Genomic Research Centre, Medical and Population Genomics Programme. She is also Senior Group Leader at the Wellcome Sanger Institute in Hinxton (UK), Professor of Human Genetics at the University of Cambridge and a member of the European Molecular Biology Organisation (EMBO); in 2022 she was also elected as a member of the Executive Office of the International Common Disease Alliance (ICDA) and of the Accademia Europea
Health Data Science	**EMANUELE DI ANGELANTONIO**	Head of the Health Data Science Research Centre, set up under an agreement with the Politecnico di Milano. Professor of Clinical Epidemiology in the Department of Public Health and Primary Care at the University of Cambridge and elected Senior Investigator of the National Institute for Health and Care Research (NIHR) in the UK in 2022
Health Data Science	**FRANCESCA IEVA**	Associate Head of the Health Data Science Research Centre with the Politecnico di Milano. She is Associate Professor of Statistics at MOX, the Modelling and Scientific Computing laboratory at the Department of Mathematics, Politecnico di Milano
Neurogenomics	**GIUSEPPE TESTA**	Molecular biologist, Head of the Neurogenomic Research Programme under an agreement with the University of Milan. He is Full Professor of Molecular Biology in the Department of Oncology and Haemato-Oncology of the University of Milan; he is also Director of the Science in Society Project at the European Institute of Oncology, member of the Scientific Council and Group Leader of the 'High Definition Disease Modelling Lab Stem Cell and Organoid Epigenetics'; in 2022 he was elected member of the European Molecular Biology Organisation (EMBO)

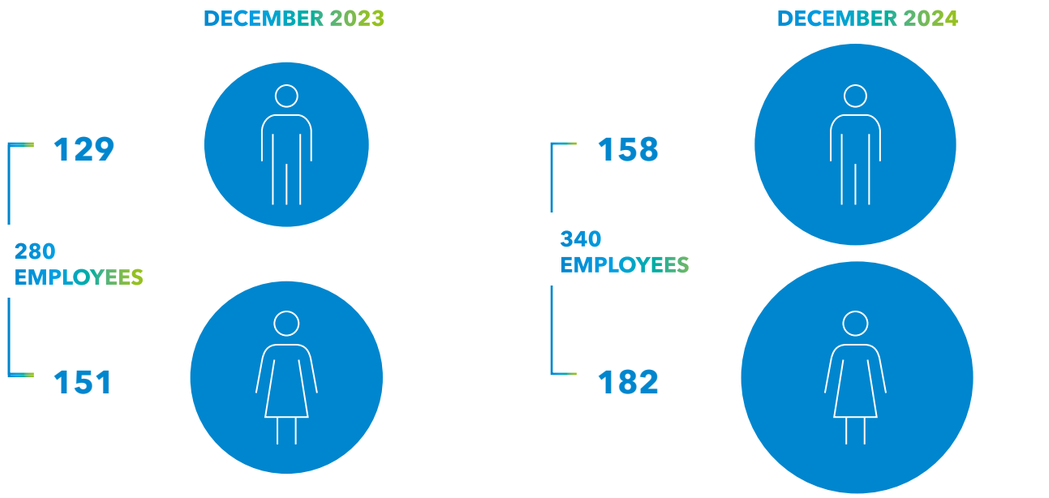
2024 RESULTS

HT's recruitment and selection activities continued throughout the financial year. At the end of 2024, its workforce consisted of **340** people, **60** more than at the end of 2023. The workforce consists of **43** senior managers, **63** middle managers and **231** office workers and **3** apprentices. In addition to employees, HT also has **10** project-based workers, **82** PhDs and **30** interns.

In addition to the heads of the research areas, the HT Group Leaders employed until 31 December 2024 are represented below:

MAGDA BIENKO	Group Leader in the Genomics Research Centre, Functional Genomics programme. Her research is mainly intended to understand the principles and design mechanisms that shape the spatial arrangement of DNA, RNA and proteins in the mammalian cell nucleus, developing new sequencing and single cell microscopy methods, as well as new mathematical modelling approaches.
LORENZO CALVIELLO	Molecular and computational biologist and Group Leader in the Genomics Research Centre. His laboratory uses omics technologies and computational approaches to highlight different aspects of translational control, examining both the coding and non-coding transcriptome.
ANA CASAÑAL	Biochemist and expert in integrated structural biology with a focus on Cryo-Electron Microscopy and Group Leader in the Structural Biology Research Centre. At HT, her group combines state-of-the-art Cryo-Electron Microscopy with biochemical and biophysical methods to decipher mRNA processing mechanisms and understand how their deregulation affects diseases.
CECILIA DOMÍNGUEZ CONDE	Group Leader in the Genomics Research Centre, Medical and Population Genomics Programme. Her research group uses state-of-the-art genomic and computational methods to study human immunity in early childhood and immune-mediated diseases in children.
FRANCESCA COSCIA	Italian biochemist and expert in Cryo-Electron Microscopy and Group Leader in the Structural Biology Research Centre. Her research focuses on the molecular mechanisms underlying thyroid function and diseases.
PHILIPP ERDMANN	Chemical biologist, microscopist and Group Leader in the Structural Biology Research Centre. His laboratory focuses on analysing the effects of liquid-liquid phase separation (LLPS) using cryo-electron tomography.
ALICE GIUSTACCHINI	Group Leader in the Genomics Research Centre, Medical and Population Genomics Programme. Her research group aims to develop new strategies to prevent and treat leukaemia progression.
CRAIG GLASTONBURY	Group Leader in the Genomics Research Centre, Medical and Population Genomics Programme. His laboratory develops and applies machine learning methods to understand the genetic basis of a broad spectrum of complex diseases through the collection of large-scale biomedical imaging datasets.
OLIVER HARSCHNITZ	Stem cell biologist and Group Leader in the Neurogenomics Research Centre. His research focuses on the mechanisms that cause neuro-immunological diseases, in particular what leads to inflammation in the brain.
FRANCESCO IORIO	Group Leader in the Centre for Computational Biology where he is establishing a research programme in Computational Cancer Pharmacogenomics and Therapeutic Target Discovery.
FLORIAN JUG	Group Leader in the Computational Biology Research Centre. His research seeks to push the boundaries of what artificial intelligence and machine learning can do to better analyse and quantify biological data.
NEREO KALEBIC	Group Leader in the Neurogenomics Research Centre. His research focuses on the molecular and cellular biological mechanisms underlying the development of the human neocortex and its implications for human evolution and neurodevelopmental disorders.
IVANO LEGNINI	Molecular and systems Biologist. Group Leader in the Genomics Research Centre, he works in the field of gene regulation and RNA metabolism, as well as on the development of new genomic technologies to perturb and measure gene expression.
FERNANDA PINHEIRO	Group Leader in the Computational Biology Research Centre. Her group brings together experimental and theoretical research to develop a predictive framework for evolutionary processes under conditions of ecological complexity, based on models of cell metabolism.
BLAGOJE SOSKIC	Immunologist, geneticist and Group Leader in the Genomics Research Centre. His research group uses a wide range of genomic and immunological experiments to study variations in the immune system. The group is particularly interested in understanding the genetic control of T cell-B cell interaction and antibody production.
ELENA TAVERNA	Neuroscientist and Group Leader in the Neurogenomics Research Centre. Her research seeks to understand how neuronal stem cells influence brain formation. Answering this question is crucial to understanding the mechanisms of brain development and evolution and how these mechanisms are altered in neurodevelopmental disorders.
JOSÈ DAVILA-VELDERRAIN	Computational systems biologist and Group Leader in the Neurogenomics Research Centre. He is interested in developing a deeper understanding of the diversity and dynamic behaviour of human brain cells.
LUISA ZUCCOLO	Group Leader in the Health Data Science Research Centre. In her laboratory, epidemiologists, statisticians and data scientists analyse complex, high-dimensional data to improve understanding of maternal and child health, with a focus on intergenerational effects.

Below is an overview of HT's workforce as at 31 December 2024 compared with the previous year:



BREAKDOWN OF EMPLOYEES AS AT 31 DECEMBER 2024:

TOTAL EMPLOYEES	**340**
EMPLOYEES ON TEMPORARY CONTRACTS (including apprenticeship contracts)	**179**
OF WHICH WOMEN	52%
OF WHICH MEN	48%
OF WHICH ITALIAN	71%
OF WHICH NON-ITALIAN	29%
EMPLOYEES ON PERMANENT CONTRACTS	**161**
OF WHICH WOMEN	55%
OF WHICH MEN	45%
OF WHICH ITALIAN	89%
OF WHICH NON-ITALIAN	11%
PART-TIME EMPLOYEES	**9**
OF WHICH WOMEN	67%
OF WHICH MEN	33%
OF WHICH ITALIAN	78%
OF WHICH NON-ITALIAN	22%
FULL-TIME EMPLOYEES	**331**
OF WHICH WOMEN	53%
OF WHICH MEN	47%
OF WHICH ITALIAN	80%
OF WHICH NON-ITALIAN	20%

The table required under GRI 2-7 is given below along with a comparison with previous years:

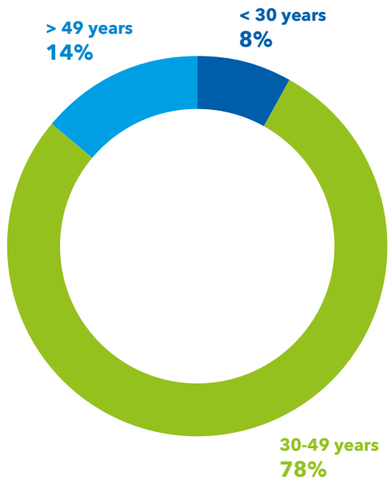
GRI 2-7[4]

EMPLOYEES	2022	2023	2024	CHANGE % (22-24)
TOTAL NUMBER OF EMPLOYEES	**250**	**280**	**340**	36.00%
PERMANENT CONTRACT	**173**	**170**	**161**	-6.94%
OF WHICH MEN	74	74	72	-2.70%
OF WHICH WOMEN	99	96	89	-10.10%
TEMPORARY CONTRACT	**77**	**110**	**179**	132.47%
OF WHICH MEN	38	55	86	126.32%
OF WHICH WOMEN	39	55	93	138.46%
FULL-TIME CONTRACT	**243**	**271**	**331**	36.21%
OF WHICH MEN	109	127	155	42.20%
OF WHICH WOMEN	134	144	176	31.34%
PART-TIME CONTRACT	**7**	**9**	**9**	28.57%
OF WHICH MEN	3	3	3	-
OF WHICH WOMEN	4	6	6	50.00%

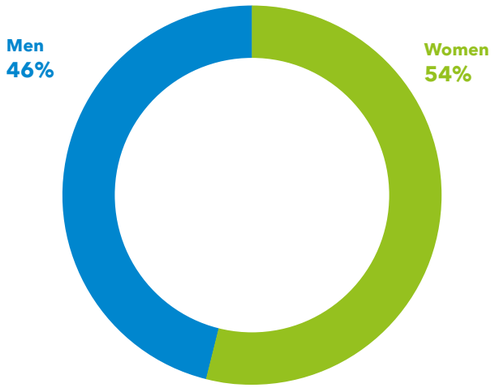
[4] For details see chapter 4.3. GRI Content Index.

The tables below show the HT population as of 31 December 2024 by area of work, gender, age and nationality:

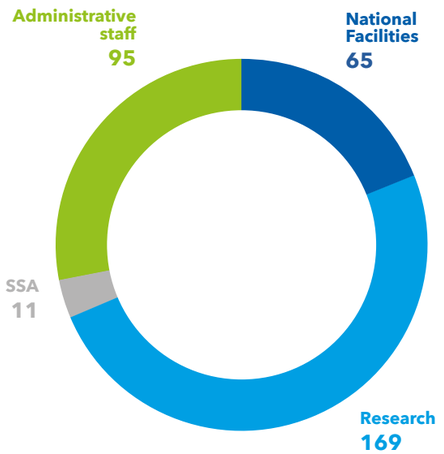
AGE DISTRIBUTION AT HT IN 2024



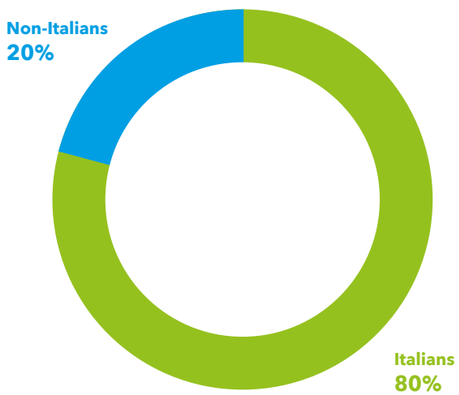
HT OVERALL GENDER DIVERSITY RATIO 2024



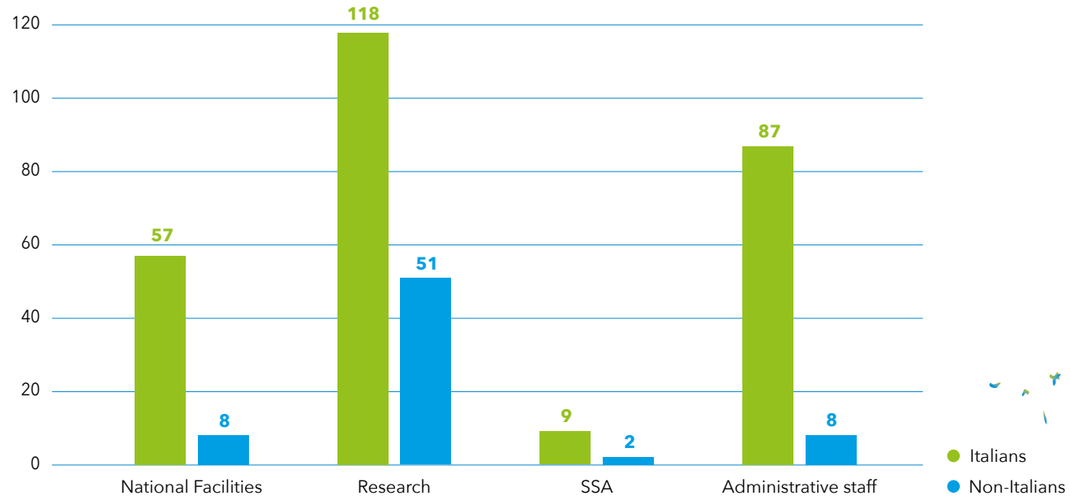
HT EMPLOYEES BY AREA 2024



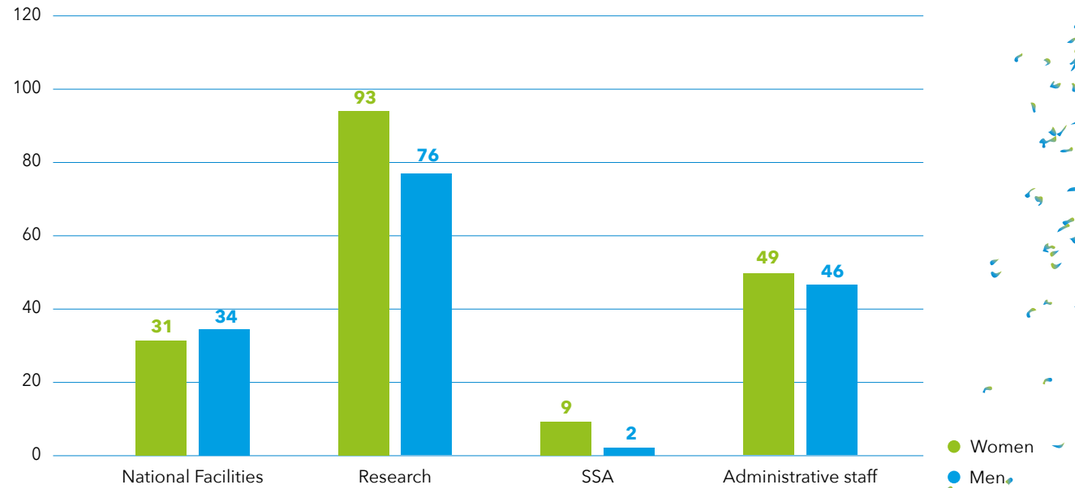
NON-ITALIANS/ITALIANS RATIO AT HT IN 2024



DISTRIBUTION OF NATIONALITIES BY AREA AT HT IN 2024



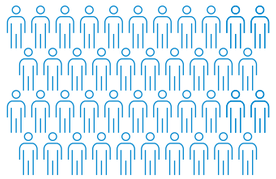
GENDER DISTRIBUTION BETWEEN AREAS AT HT IN 2024



Below is an overview of employees hired and terminated in 2024, broken down by gender and age:

88 EMPLOYEES HIRED

42



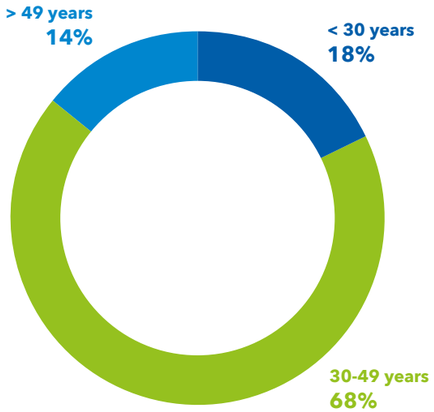
46

28 EMPLOYEES TERMINATED

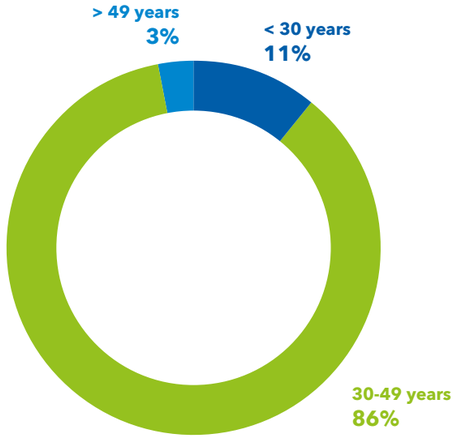
14

14

DISTRIBUTION OF RECRUITS BY AGE AT HT IN 2024



DISTRIBUTION OF EMPLOYEES TERMINATED BY AGE AT HT IN 2024



2024 also saw an increase of approx. 35% in the number of PhD students and postdoctoral fellows.

75% of new employees in 2024 were Italian and 25% were non-Italian.
93% of employees terminated in 2024 were Italian and 7% were non-Italian.

As at 31.12.2024, HT also had **10** project-based workers (not included among PhD students), **82** PhD students and **30** trainees mainly engaged in scientific activities.

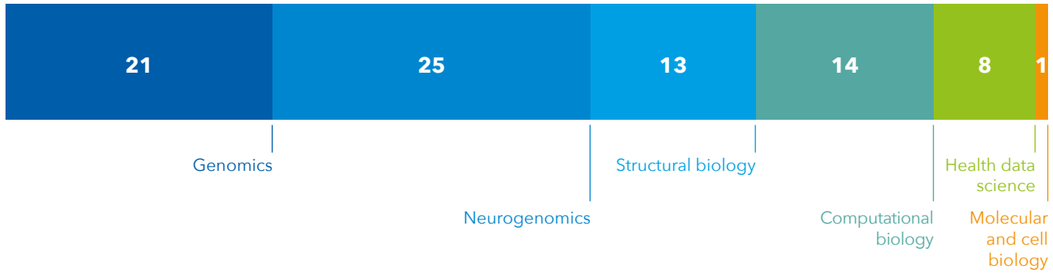
The tables below show the breakdown of postdocs by area as at 31 December 2024 and the number of PhD students as at the same date:

POSTDOCS AS AT 31 DECEMBER 2024

INSTITUTE OF ORIGIN	COUNTRY OF THE INSTITUTE OF ORIGIN	DEPARTMENT
4Bases Italia	Italy	Computational Biology Research Centre
Cambridge University	UK	Health Data Science Research Centre
CRUK Manchester Institute	UK	Computational Biology Research Centre
ETH	Switzerland	Structural Biology Research Centre
Genentecs	USA	Genomics Research Centre - Functional Genomics
Grenoble Alpes Université	France	Health Data Science Research Centre
Human Technopole Foundation	Italy	Genomics Research Centre - Functional Genomics
Human Technopole Foundation	Italy	Genomics Research Centre - Population & Medical Genomics
Humboldt-Universität	Germany	Genomics Research Centre - Functional Genomics
Imperial College London	UK	Genomics Research Centre - Functional Genomics
Imperial College London	UK	Structural Biology Research Centre
Institut de Physique et Chimie des Materiaux de Strasbourg	France	Structural Biology Research Centre
Institut Européen de Chimie et Biologie (Bordeaux)	France	Structural Biology Research Centre
Institut für Molekulare Medizin	Germany	Neurogenomics Research Centre
Institute of Cancer Research	UK	Structural Biology Research Centre
Instituto de Neurociencias	Spain	Neurogenomics Research Centre
IRB Barcellona	Spain	Computational Biology Research Centre
Ispro	Italy	Genomics Research Centre - Population & Medical Genomics
Istituto di Biomedicina	Italy	Health Data Science Research Centre
Istituto Europeo di Oncologia	Italy	Genomics Research Centre - Population & Medical Genomics
Istituto Europeo di Oncologia	Italy	Neurogenomics Research Centre
Kelley Harris lab	USA	Computational Biology Research Centre
Leiden University	The Netherlands	Structural Biology Research Centre
Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG)	Germany	Structural Biology Research Centre
Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG)	Germany	Structural Biology Research Centre
Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG)	Germany	Structural Biology Research Centre
Mirxes	Singapore	Computational Biology Research Centre
MPI-CBG, Dresden and the Gurdon Institute & Cambridge Advance Imaging Centre and GSK	Germany	Neurogenomics Research Centre
Nature G Chinese Academy of Sciences	China	Structural Biology Research Centre

INSTITUTE OF ORIGIN	COUNTRY OF THE INSTITUTE OF ORIGIN	DEPARTMENT
Otto Von Guericke University Magdeburg	Germany	Genomics Research Centre - Population & Medical Genomics
POLIMI	Italy	Health Data Science Centre
Purdue University	Indiana	Structural Biology Research Centre
Seqplexing SL	Spain	Genomics Research Centre - Population & Medical Genomics
Universidad de Buenos Aires	Argentina	Neurogenomics Research Centre
Universidade de Coimbra	Portugal	Neurogenomics Research Centre
University of Trento	Italy	Genomics Research Centre - Functional Genomics
University of Genoa	Italy	Neurogenomics Research Centre
University of Milan Bicocca	Italy	Computational Biology Research Centre
University of Milan Bicocca	Italy	Computational Biology Research Centre
University of Pisa	Italy	Neurogenomics Research Centre
University of Turin	Italy	Computational Biology Research Centre
University of Milan Bicocca	Italy	Genomics Research Centre - Functional Genomics
San Raffaele University	Italy	Genomics Research Centre - Functional Genomics
Université de Bordeaux	France	Structural Biology Research Centre
University College London	UK	Computational Biology Research Centre
University of Cambridge	UK	Structural Biology Research Centre
University of Genève	Switzerland	Structural Biology Research Centre
University of Leicester	UK	Genomics Research Centre - Functional Genomics
University of Natural Resources and Life Sciences	Austria	Structural Biology Research Centre
University of Oxford	United Kingdom	Genomics Research Centre - Functional Genomics
University of Oxford	United Kingdom	Neurogenomics Research Centre
University of Oxford	United Kingdom	Genomics Research Centre - Population & Medical Genomics
University of Regensburg	Germany	Genomics Research Centre - Functional Genomics
University of Zurich	Switzerland	Structural Biology Research Centre
Utrecht University	Netherlands	Structural Biology Research Centre
Vali d'Hebron Institute of Research	Spain	Genomics Research Centre - Functional Genomics

PHD STUDENTS AS AT 31 DECEMBER 2024



ACTIVITIES IN 2024

INTERNAL PROCEDURE MANUAL FOR HUMAN RESOURCES MANAGEMENT PROCESSES

Since 2023, HT has been using an internal procedure for human resources management. This procedure describes and regulates HR processes, paying special attention to gender equality processes. These processes constitute the management system governed by the 'Manual of the Gender Equality Management System' pursuant to UNI/PdR 125/2022 practice:

- **Selection and recruitment:** the principles guiding staff recruitment are established. Furthermore, in line with the values of diversity and inclusion, the internal procedure addresses gender differences, highlighting the fundamental role they can play during the selection process. The procedure analyses how gender bias can manifest itself during personnel selection and suggests solutions to limit its effects. The aim of the internal procedure is to ensure that selection and recruitment take place in a fair and non-discriminatory manner, in accordance with the law on equal opportunities and treatment of men and women. The aim is to avoid any direct or indirect discrimination based on gender, age, personal or family care needs, pregnancy, maternity or paternity status.

- **Equal pay:** this process is particularly focused on the principles of scientific excellence, internationality and diversity in a work context centred based on gender equality. HT's ambition is to become a benchmark and internationally recognised research institute that is able to attract and retain the best researchers and talents. The process provides an overview of all elements available to staff and aims to prohibit any pay discrimination, whether direct or indirect. The aim is to ensure that job classification systems adopt common criteria for men and women, with pay being commensurate with one's role and responsibilities.

- **Career management:** a general framework is provided for managing current staff and supporting, in terms of rules and attractiveness, the development of HT's human resources and the professionalism of students and researchers, using the international context of scientific institutes and the best practices of public research institutions as benchmarks. The aim of this process is to promote inclusion, gender equality and integration by ensuring equal opportunities and non-discrimination when accessing employment, training and professional advancement, and by prohibiting any discrimination based on gender, marital or family status, pregnancy, maternity or paternity, or any other characteristic and at any level.

- **Parenthood and care**: the measures taken by HT to fully support parenthood in a person-centred perspective are identified. This process is intended to provide effective support to mothers and fathers in balancing their work commitments with the new demands of parenthood.

- **Work-life balance:** this process seeks to define the tools and initiatives made available to HT's personnel to reconcile their personal and professional life. The Human Technopole Foundation intends to create and promote a working environment that enhances motivation, performance and creativity in a highly interconnected environment that allows and calls for increasing flexibility.

- **Training:** this process aims to provide HT personnel with the specialised and soft technical skills necessary to perform their work activities, contributing to the continuous improvement of their performances. Furthermore, by respecting gender policy principles and observing the guidelines set out in the procedures, the training process offers pathways supporting gender equality and inclusion.

SOME ACTIVITIES AND INITIATIVES IN THE HUMAN RESOURCES AREA

During 2024, the Human Technopole Foundation continued to pursue the initiatives launched in previous years:

- **Onboarding**: a series of activities and meetings for newcomers, designed to familiarise them with HT, its organisational structure, working environment, colleagues and the essential information they need to make the most of their initial, more sensitive period at HT. The process involves the participation of at least one manager of the main corporate functions;

- **Psychological Counselling**: since 2023, HT has launched a Psychological Counselling service to support all its employees and collaborators. The service offers individual counselling meetings oriented towards occupational wellbeing, with the aim of preventing and reducing work-related stress. Counselling is focused on optimising work-life balance, providing insights into how work interacts with other personal dimensions and other areas of personal life. The service provides a number of meetings on request, at varying intervals according to one's need. Given the different cultures present at HT, meetings are available also in English, French, German, Portuguese and Spanish;

- **Gender Equality Team**: the project team, coordinated by the Head of Administration and, since mid-year, by the new Head of HR, has been working on the implementation of the planned actions, also with the collaboration of several internal functions and pursuing with commitment the specific measures and objectives for the period. In the meantime, the drafting of the new Gender Equality Plan was completed and approved at the end of November 2024. The plan takes into account the Horizon Europe guidelines, meets the mandatory requirements for application to scientific grants and is aligned with the standards set out in the Uni/PdR 125:2022 certification, further consolidating the organisation's commitment to promoting gender equality;

- **Payroll and administrative management**: no new payroll-related initiatives were implemented in 2024. However, a transition to a new provider is planned for 2026, with the integration of payroll management into HR and financial systems for greater efficiency;

- **Business climate analysis**: In the course of the year, the HR department initiated the first climate analysis among HT staff (known as the Engagement Survey), whose data will be reviewed in 2025. Organisational climate surveys are used to collect feedback from employees on key aspects such as work well-being, internal communications and engagement, enabling the organisation to identify areas for improvement and define strategies aimed at improving working conditions;

- **Organisational review and job levelling**: in 2024, an organisational review process was launched to optimise and make the entire Institute more efficient. In addition, the HR team introduced job levelling, adopting the Willis Towers Watson's Global Grading System (GGS). With this process, roles within the organisation can be classified and compared according to the related responsibilities, skills and impact. This tool is fundamental to ensure consistency and pay equity, as well as to foster clearer and more structured career paths.

TRADE UNION REPRESENTATION

During 2024, constant dialogue continued with the unitary trade union representatives, which led to the signing of an important and strategic agreement for the management of temporary workers in the research area (known as Proximity agreement pursuant to Art. 8 of Decree Law 138/2011). In addition, negotiations were resumed on the text of the supplementary agreement, adapting and updating it in the light of the issues arising during the year concerning parental support, business travel, remote working, leave and permits.

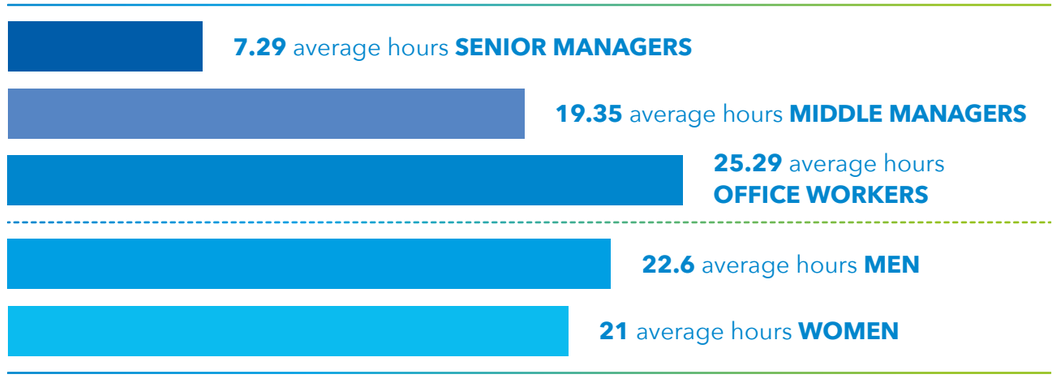
Dialogue and cooperation ensure positive discussion and mutual listening on issues that are relevant to HT's interest and to staff management.

TRAINING OPPORTUNITIES IN ADMINISTRATION

In order to build an attractive working environment also for non-scientific talents and professionals, HT offers its staff a wide range of training opportunities. Both soft skills courses and courses on technical topics of general interest are organised. The aim is to contribute to improving employees' professional profiles and to promote their continuous personal and professional growth.
In 2024, 19 training courses were held to support the development of staff skills, both in technical and crosscutting areas. Activities covered topics such as business process management, project management and digital tools such as Excel and Power BI. Courses on communications, conflict management and decision-making were also proposed. In addition, English and Italian language courses were offered to meet the needs of an international working environment.
The training offer has been enriched with the use of a digital platform that, although in an early stage, is laying down the foundation for further continuous and flexible learning opportunities.
With reference to internal and external scientific training, please refer to the section of the Strategy in subchapter 2.3.3 '*Offering advanced scientific training to the Italian scientific community*'.

Below are the average hours of training broken down by category and gender

21.5 average hours **of training for employees**



The table required by GRI 404-1 with evidence of training hours and average hours, for the year 2023, broken down by gender and professional category is shown below.

GRI 404-1[5]

EMPLOYEES			2024
BY GENDER AND CATEGORY	**MEN**	**WOMEN**	**TOTAL**
SENIOR MANAGERS	12	12	24
MIDDLE MANAGERS	13	39	52
OFFICE WORKERS	35	84	119
TOTAL	60	135	195

TRAINING HOURS			2024
BY GENDER AND PROFESSIONAL CATEGORY	**MEN**	**WOMEN**	**TOTAL**
SENIOR MANAGERS	92	83	175
MIDDLE MANAGERS	293	713	1,006
OFFICE WORKERS	971	2,038	3,009
TOTAL	1,356	2,834	4,190

AVERAGE TRAINING HOURS	2024
PER EMPLOYEE	21.5
OF WHICH MEN	22.6
OF WHICH WOMEN	21

AVERAGE TRAINING HOURS		2024
BY GENDER AND PROFESSIONAL CATEGORY	**MEN**	**WOMEN**
SENIOR MANAGERS	7.67	6.92
MIDDLE MANAGERS	22.54	18.28
OFFICE WORKERS	27.74	24.26

[5] The training hours included refer solely to technical/administrative and non-compulsory training hours. Scientific training is not included.

Michela Colombo
Senior Technician, Soranzo Group

GRI

2.2.3 INFRASTRUCTURAL CAPITAL

GRI 2-1[6]

- Manufactured physical objects (as distinct from natural physical objects) that are available to an organisation for use in the production of goods or the supply of services, including: buildings, equipment and infrastructure (such as roads, ports, bridges, and waste and water treatment plants)
- Manufactured capital is often created by other organisations, but includes goods manufactured by the reporting organisation for sale or when used for its own purposes

[6] For details see chapter 4.3. GRI Content Index.

HT lies at the heart of MIND (Milan Innovation District - (mindmilano.it), a new city district covering over one million square metres on the former EXPO 2015 site, located in the north-west of Milan.

MILANO INNOVATION DISTRICT

Upon its completion, MIND will offer a mix of public and private functions, integrated into a science and technology park dedicated to sectors such as Life Sciences, Healthcare, Biotech, Pharma, Agri-Food, Nutrition, Data Science and Smart Cities.

MIND is a public-private partnership involving AREXPO, the site owner, and the Australian multinational Lendlease, an expert in urban and infrastructure regeneration projects. The area already hosts the new headquarters of the Ospedale Galeazzi - Sant'Ambrogio IRCCS (Treatment and Research Hospitals), the headquarters of the Triulza Foundation, the 'Federated Innovation' model of public-private collaboration and, in the future, the campus of the science faculties of the Milan University.

Important companies such as Astrazeneca, Illumina, Esselunga Bio4Dreams, Rold, Valore Italia have already settled in the MIND area. The Decumanus, the central section of the site, which is about 1,500 metres long, will become a green area, thus one of the longest linear parks in Europe.

The masterplan for the urban redesign of the area was proposed by the international design and innovation firm Carlo Ratti Associati, winner of the international competition to redesign the site. The project, promoted by Lendlease, is based on the principles of urban innovation, environmental sustainability and smart mobility.

The project, promoted by Lendlease, is based on the principles of urban innovation, environmental sustainability and smart mobility.

BUILDINGS AND LABORATORIES

In this context, the HT project is definitely central to MIND's development plans and as such its buildings have a high iconic value.

PALAZZO ITALIA

After representing Italy during EXPO 2015, Palazzo Italia is now the institutional headquarters of HT. Designed by the Nemesi firm, the building stands in front of the Tree of Life and has five floors, reaching a total height of 35 metres and covering an area of approximately 18,000 square metres. Its architecture is inspired by the idea of an urban forest with patterns of lines generating light and shade. Designed according to sustainability principles, it is conceived as a low-energy building. During EXPO Milano 2015, the exhibition spaces of Palazzo Italia were dedicated to the power of beauty and the future, highlighting Italy's creativity and potential. At the end of the World Expo, Palazzo Italia underwent intensive renovation work to turn the exhibition areas into spaces capable of accommodating around 400 workstations. Several areas have been retained, including the restaurant area, the auditorium, the panoramic terrace and the inner square.

INCUBATOR LABS

HT's first scientific laboratories were built in the area adjacent to Palazzo Italia and the Tree of Life. They consist of three buildings: two with two floors, mainly dedicated to laboratories, and a third with one floor only, which houses the support structure for the Cryo-Electron Microscopy Facility. The latter is equipped with two microscopes, a sample preparation room and a microscope control room. The laboratories house approximately 190 'wet' workstations, i.e. individual counter spaces for experimental researchers, support desks, support laboratories, instrument rooms, cell cultures, core services (glassware washing, kitchen, storage room, etc.) and some offices. The laboratories have been operational since 2021.

NORTH PAVILION

The North Pavilion underwent repurposing work so that it could host imaging facilities with cryo-electron microscopes (Cryo-EM) and optical microscopes (Light Microscopy Imaging). It is equipped with support spaces for sample preparation and offices for the managers of the two facilities. The first floor houses several open space workstations for the Image Analysis Facility staff and for the users of the two Facilities.
The building underwent major renovations to ensure a stable floor, not subject to tremors, vibrations or the slightest oscillations, and able to support the weight of microscopes. The North Pavilion has been operational since 2021.

SOUTH PAVILION

The South Pavilion was renovated in 2021 and, after plant and civil engineering additions, it has been housing since July 2023 the new experimental research laboratories for the various Centres and additional Facilities, as well as office space.

PROPERTY DEVELOPMENT ACTIVITIES, CRITERIA AND PLANS

Campus development plans include three phases:

1st PHASE

This phase started in the second half of 2018 and continued until the first half of 2021. Detailed planning of the Incubator Labs was mostly carried out in 2019-2020, collaborating closely with the first group of Research Centre Managers and Group Leaders recruited at HT. Since 2018, Palazzo Italia has been housing the core of the Foundation's administrative activities and part of its research activities. Further renovation work on Palazzo Italia was completed in 2021, followed by further repurposing work that began in 2022 and was completed in 2023.

2nd PHASE

This phase will continue until completion of the South Building, scheduled for 2028. The aim is to consolidate the first core of HT's experimental research and service activities, comprising the Genomics, Neurogenomics and Structural Biology Research Centres, located in the Incubator Labs, North Pavilion and South Pavilion.
Since 2021 these spaces have been housing primary research laboratories, the first core of HT's basic scientific facilities, as well as other shared common services.

3rd PHASE

Along with completion of the South Building, expected in 2028, the experimental research and service activities that first started in the Incubator Labs, in the North Pavilion and in the South Pavilion will be gradually relocated.

Building and infrastructural development activities and programmes in the MIND area are based on the following criteria:

FLEXIBILITY	This allows for the adaptation, modification and reconfiguration of spaces over time to meet changing needs and accommodate new lines of research and technology. This aspect is fundamental to modern life science research and thus also to HT.
DURABILITY AND MAINTENANCE	Design and technical solutions are adopted that ensure maximum durability, reduce the need for routine and extraordinary maintenance and optimise operating and maintenance costs.
INNOVATIVE CONSTRUCTION TECHNOLOGIES	Wherever possible, industrialised construction solutions and the use of advanced materials are preferred, in line with the principles of modularity and construction efficiency.
ENVIRONMENTAL SUSTAINABILITY AND ENERGY EFFICIENCY	The design of interventions and installations follows energy saving and environmental sustainability criteria, including innovative and technologically advanced components. Architectural solutions that reduce consumption and produce energy are adopted. These include systematic reference to their social and environmental impact, with specific rules, procedures and guidelines based on existing standards and regulations, such as Minimum Environmental Criteria (CAM) for public procurement, the LEED (Leadership in Energy and Environmental Design) green building rating system and the Life Cycle Assessment methods for assessing the environmental impact of laboratories and buildings.
'COMMON SPACE' CONCEPT	Overall development design of MIND includes buildings with a permeable ground floor, conceived as 'common space', and the absence of individual, enclosed building lots. The degree of functional openness of the ground floor of HT's newly constructed buildings is defined by taking into account the needs of the new research centres, internal logistics requirements for scientific activities, pedestrian and vehicle traffic of staff, external suppliers and visitors, as well as safety and security issues and the protection of HT's research work.

2024 ACTIVITIES AND RESULTS

According to the strategic planning of the Human Technopole Foundation, in addition to the management and operation of Facility Management services on HT-owned real estate, the development and improvement of infrastructures and spaces for scientific research continued in 2024.

Among the main construction sites, the following should be mentioned:

1. completion of the construction site for the liquid nitrogen supply line serving the CryoEm laboratories in the North Pavilion and the biological sample storage area (biobank) in the basement of Palazzo Italia. The premises are now set up and used by HT's researchers, and the running and refilling of the facility is managed by a specialist supplier;
2. conclusion of the project for the construction of the new Biosafety Level 3 (BSL3) laboratory in the South Pavilion;
3. conclusion of PHASE 1 for the expansion of light imaging microscopy in the North Pavilion. This phase of work will end in 2025 with further facility expansions;
4. icompletion of work to open the Preclinical Research Facility within the Incubator Block 3 building;
5. completion of work to open the Mass Spectrometry laboratory in the Incubator Block 1 building.

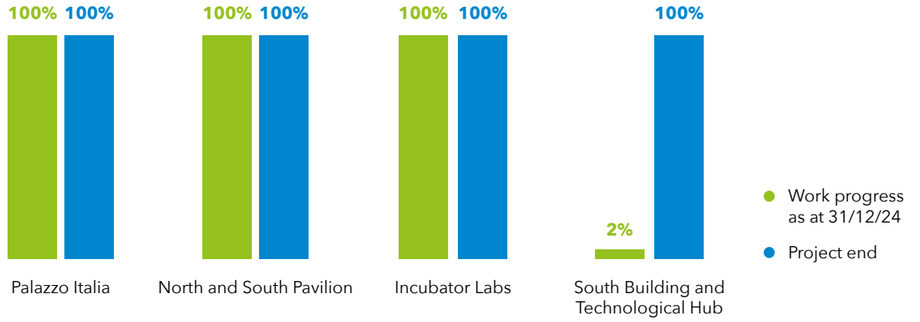
From the point of view of the ongoing improvement of the infrastructure available to HT and National Facilities, these were the most significant activities carried out in 2024:

- the contract for the development of the executive design and works (TEFP) for a major expansion of light imaging microscopy in the North Pavilion was awarded. Implementation will take place in phases and be completed in Q3 2025;
- the contract for the development of the executive design and works for a major Cryo-EM microscopy expansion in the South Pavilion was awarded. Construction will require major structural and plant engineering work due to the requirements of microscopes (similar to the instrument fleet already operating in the North Pavilion) and will be completed in 2026;
- the contract for the development of the executive design and works for the construction of a new Tape Library in the basement of Palazzo Italia for the long-term storage of scientific data in support of ICT was awarded. Construction will be completed in Q3 2025;
- the design, supply and installation of 2 prefabricated shelter modules for a new CED HPC cluster to be temporarily positioned in the technical area of Palazzo Italia for an additional power of 320kW in total, was awarded and launched. Delivery is expected to take place by Q3 2025. The option of doubling this infrastructure if the needs of the National Facilities so require is envisaged. This infrastructure is needed to allow HT to complete the fully operational Technological Hub and Data Centre.

With regard to completion of the Campus in the medium term, a revision of the Final Project for the construction of the new South Building and Technological Hub was launched in 2024, in order to meet the new requirements arising from the new Strategic Plan, the requirements of the National Facilities and the increase in construction prices compared to the 2022-2023 price lists. In November, the HT boards approved the re-evaluation and revision of the project, which will be completed in 2025. This will be followed by the process required to obtain the necessary building permits, the preparation of the executive project and the tendering procedure for the works.

The chart below shows the progress of construction and renovation work on the buildings at the end of 2024:

% PROGRESS IN INFRASTRUCTURE DEVELOPMENT PROJECTS IN 2024



The following tables show the percentage of square metres allocated to research for the HT Campus buildings, at the end of 2024:

DETAILS OF HT SQM		PERCENTAGE OF LABORATORIES, OFFICES AND SERVICES IN 2024
SOUTH PAVILION Laboratories	2,844	44%
NORTH PAVILION Laboratories	1,096	
INCUBATOR LABS Laboratories	3,387	
PALAZZO ITALIA Laboratories	1,601	
Offices and Services	11,468	56%

DETAILS OF FORECAST SQM	
SOUTH BUILDING (FORECAST 2029)	
LABORATORIES	15,460
SERVICES	11,004
OFFICES	3,914

GRI

2.2.4 RELATIONAL CAPITAL

GRI 2-6; GRI 2-17; GRI 2-28[7]

Institutions and relations within and between communities, groups of stakeholders, and the ability to share information to improve individual and collective wellbeing.

Social and relational capital includes:

- **Shared norms, values and behaviour**
- **Key relationships with stakeholders, the trust and willingness to commit, developed by an organisation and which it seeks to build and protect with external stakeholders**
- **The intangible assets associated with the brand or reputation developed by an organisation**
- **The social licence of an organisation to operate**

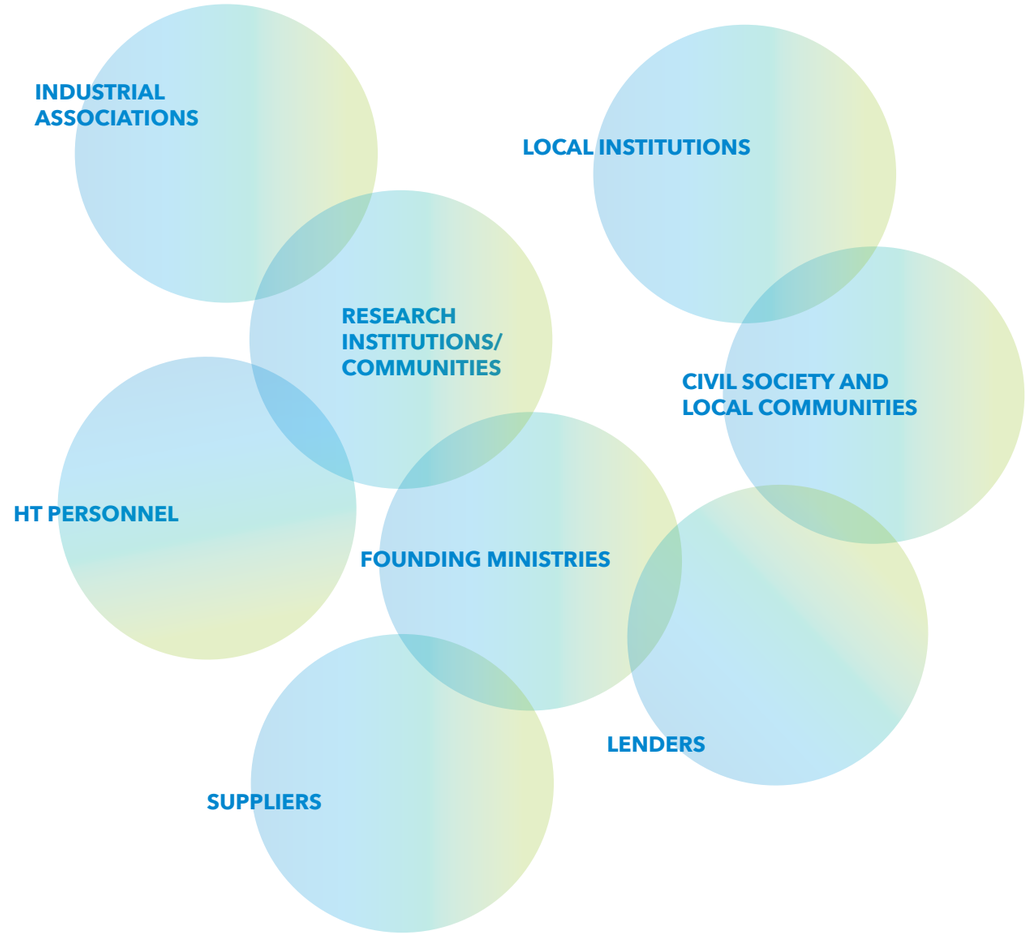
[7] For details see chapter 4.3. GRI Content Index.

OUR STAKEHOLDERS

The Human Technopole Foundation adopts an inclusive and structured approach to stakeholders, aimed at building strong relationships based on the principles of transparent and effective communications. This approach is implemented through a series of initiatives, including interviews, consultations, institutional and scientific activities, and surveys.

Stakeholder engagement activities are based on a systematic stakeholder mapping process, which involves all HT's internal structures and senior figures. The approach adopted is described in detail in subchapter 2.1, 'Stakeholder engagement and the materiality matrix' of this document.

The Human Technopole Foundation's key stakeholders are shown below:



The Human Technopole Foundation acknowledges the importance of people and of the territory in which it operates. HT constantly strives to implement specific scientific and institutional initiatives, also aimed at the economic, social and cultural development of the areas in which it is located.

Major stakeholder engagement initiatives include, for example, collaborations, partnerships and institutional initiatives.

SCIENTIFIC PARTNERSHIPS AND COLLABORATIONS

The Human Technopole Foundation develops strategic partnerships and actively participates in consortia and collaborative research projects on a European and international scale. Some of these initiatives include:

- **LifeTime**, of which HT is an associate partner, is a pan-European research initiative that aims to revolutionise healthcare by understanding and monitoring human disease at single cell resolution to transform patient care and the sustainability of healthcare systems. The LifeTime consortium brings together more than 120 leading scientists from over 90 European research institutes. The University of Milan is the official partner of the consortium, while other Italian associate partners include the European Institute of Oncology, the FIRC Foundation Institute of Molecular Oncology, the Institute of Biomedical Technologies and the Institute of Photonics and Nanotechnologies of the National Research Council, as well as several leading Italian universities;

- **Human Cell Atlas** represents a global effort that brings together expertise in biology, medicine, genomics, technology development and computation with the goal of creating a comprehensive collection of cell maps, characterising each of the thousands of cell types present in the human body. A systematic study of the molecular mechanisms underlying the production, function and combined activity of different cell types would be an incredibly valuable resource for the global research community;

- **The Cancer Dependency Map** is a partnership between the Broad Institute (USA) and the Wellcome Sanger Institute (UK) that brings together expertise, data and computational tools to systematically identify the genetic and pharmacological dependencies of cancer and the biomarkers that predict them;

- **Fantom** is a consortium initially set up at the Riken Institute (Japan) to assign functional annotations to full-length cDNAs, which has since developed and expanded over time to encompass the fields of transcriptome analysis. The goal of FANTOM is to move steadily up the layers in the system of life, thus progressing from an understanding of the 'elements' - the transcripts - to an understanding of the 'system' - the transcriptional regulatory network, in other words the 'system' of an individual life form. The current edition of FANTOM, which HT has joined, is dedicated to the functional analysis of non-coding RNA;

- **The Human Pangenome Reference Consortium** (HPRC) aims to create a more sophisticated and complete human reference genome with a graph-based, telomere-to-telomere representation of global genomic diversity. It will leverage innovations in technology, study design and global partnerships with the goal of constructing the highest-possible quality human pangenome reference. The goal is to improve data representation and streamline analyses to enable routine assembly of complete diploid genomes;

- The **NeuroCOV** project aims to study the neurological and neuropsychiatric effects of COVID-19, with the objective of addressing the involvement of the immune system and the direct loss of neuronal function;

- The consortium **Artificial Intelligence for Image Data Analysis in the Life Sciences (AI4Life)** intends to create accessible, harmonised and interoperable artificial intelligence (AI) tools and methods to solve current microscope image analysis issues;

- **R2D2-Mental Health** is a project that aims to identify risk and resilience factors associated with neurodevelopmental diversity, including autism and attention-deficit/hyperactivity disorders;

- The **IMAGINE** project will develop the next generation of cross-scale imaging technologies for an integrated investigation of the structure and function of biological systems;

- **CV-Risk-IT** is a randomised clinical trial that seeks to assess the value of imaging and genetic data. The study involves a national collaboration with the cardiology network and the Ministry of Health to evaluate the use of imaging and genetic information for the prevention of cardiometabolic and cardiovascular diseases;

- **iCARE4CVD** is a public-private research collaboration to search for new strategies to personalise cardiovascular disease prevention and treatment.

For an in-depth review of HT's scientific partnerships and collaborations, please visit the dedicated section on HT's website: Our Scientific Collaborations and Partnerships - Human Technopole.

INSTITUTIONAL RELATIONS

The Human Technopole Foundation's institutional activities are aimed at developing and maintaining qualified relations with national and local government entities, European and international institutions, companies, employer associations, its neighbours at MIND (Milano Innovation District) and other strategic stakeholders. These activities aim to promote, protect and consolidate HT's interests and strengthen its position in the national and international scientific environment.

2024 INITIATIVES AND RESULTS

14 PARTNERSHIPS

WITH **12** SCIENTIFIC INSTITUTIONS AND ORGANISATIONS IN 2024

- European Molecular Biology Laboratory (EMBL)
- IRCCS Istituto Nazionale per le Malattie Infettive "Lazzaro Spallanzani" (INMI)
- ASST Grande Ospedale Metropolitano Niguarda
- IRCCS Policlinico San Donato
- Kemijski Institute
- University of Bari Aldo Moro
- The Institute of Cancer Research
- The Broad Institute
- Norwegian Institute of Public Health
- ASST - Ovest Milanese - Ospedale di Legnano
- University of Pavia
- European Molecular Biology Laboratory (EMBL)
- University of Pavia
- University of Bari, Polyclinic of Bari

INSTITUTIONAL AND COMMUNICATION INITIATIVES IN 2024

In 2024, thanks to the launch of an internal reorganisation process, the Communications and Institutional Relations areas were merged to create the Communications & External Relations unit. This reorganisation increased synergies between the two areas, ensuring greater coordination in their relations with the relevant stakeholders.

Following the approval of the new 2024-2028 Strategic Plan at the end of 2023, the main objectives of communications and external relations were defined: (i) enhancement of HT's new leadership and mission, (ii) research excellence, (iii) transparency, (vi) service offering, (v) dialogue with society and (vi) HT as 'best place to work'.

The year 2024 was marked by the opening of the National Facilities, which were officially presented during an event held at the Ministry of Health, with the participation of the Minister of Economy and Finance Giancarlo Giorgetti, the Minister of Health Orazio Schillaci, and the Chief of Cabinet of the Minister of University and Research Marcella Panucci. The opening of the Facilities characterised HT's narrative and communication activities, which included ad hoc interviews with its leadership in the main national newspapers (Corriere della Sera, Repubblica, Il Sole 24 Ore) and major efforts to update and enrich the multimedia content available on the HT website.

HT's researchers were also involved in many stakeholder engagement initiatives, among which prominent institutional visits (including the undersecretary Alfredo Mantovano) and various MIND initiatives, starting with the Health Innovation Global Forum organised on the occasion of MIND Innovation Week, as well as several outreach initiatives meant for young students.

As for educational & outreach activities, in addition to HT's regular participation in the Rome Science Festival, HT participated for the first time in the European Researchers' Night and the Genoa Science Festival. During the year, thanks to the creation of a valuable network of volunteers, HT launched a programme of meetings with schools, organising the first student visits to its laboratories.

In 2024 the Human Technopole Foundation organised about 100 events for a total of approximately 1,700 participating guests. The main initiatives held during the year included the first PhD and Postdoc symposium, the presentation of the Integrated Report (which won the Oscar di Bilancio 2024), a symposium on gender equality and unconscious bias, and the annual meeting of the international Human Cell Atlas consortium.

100 EVENTS

1,700 PARTICIPATING GUESTS

HT actively participated in the activities promoted by the associations to which it belongs and in MIND district initiatives, taking part in working groups, governance meetings, institutional meetings and international visits.

With regard to internal communications, two new campaigns were introduced: Active Living and Safety Chronicles. These initiatives are intended to encourage colleagues to live an active lifestyle and to pay special attention to safety in the workplace. In addition, various community building activities were organised in the year, including HTExplorers Day and the third edition of the Shout Out programme.

The External Relations area participated in meetings and events representing the Human Technopole Foundation and contributed to the conception and planning of initiatives supporting HT, such as the annual presentation of the Integrated Report 2023 and the workshop of the Centre for Innovation and Technology Transfer at the EU Permanent Representation of Italy dedicated to the TTOs of Italian research institutes in the Life Science field.

Lastly, during 2024, the Communications & External Relations area ensured the management of sponsorship procedures; the coordinated management of the associations of which HT is a member was also launched.

COLLABORATIONS FOR SUSTAINABILITY

With regard to collaborations in the field of sustainability, the collaboration with the Italian Alliance for Sustainable Development continued in 2024. HT actively participated in the Working Groups on Foundations, Gender Equality and Sustainable Finance. HT also helped set up an operational workshop on sustainability issues at district level (MIND). The main objective of the workshop is to enhance sustainability issues in the MIND Charter of Values and turn them into materiality topics through concrete initiatives and projects to be developed from a district-based perspective. In 2024, the workshop focused on issues and projects concerning the circular economy and waste management. Lastly, HT employees and researchers also contributed to the food collection initiative in favour of the Banco Alimentare.

MEDIA AND SOCIAL NETWORK PERFORMANCE IN 2024

During the year, activities to promote HT's research continued, with a constant presence in the main national and sector media (Repubblica Salute, Le Scienze, ANSA Scienze, TG Leonardo, Panorama Sanità, Radio 3 Scienze) and dedicated content on proprietary social channels, in particular at the time of publications, grant awards and international research days. In total, the number of followers on HT's social channels rose by 17%. Newsletter subscribers increased by almost 20%, with a 55% open rate and a 7% click rate.
In 2024, the total number of mentions in newspapers and on the web, radio and TV was **972**. Of these, **434** were the result of proactive media activity, divided into:

- **20** national newspapers;
- **10** national periodicals;
- **7** national TV stations;
- **3** national radio stations;
- **62** web editions of print media (newspapers and periodicals) and web editions of news agencies;
- **5** media websites among the most read;
- **1** local radio station;
- **214** web news;
- **8** local editions of national newspapers;
- **21** local newspapers;
- **1** local TV station;
- **82** news agencies.

The articles and radio/TV reports in which HT is mentioned spontaneously relate to two macro-themes in particular:

- HT and the Life Sciences ecosystem in Italy: HT is mentioned as one of the most promising research institutes in the field of life sciences;
- HT as a protagonist of the MIND district: the Institute is described as one of the partners of the innovation district.

Finally, in general terms there was a significant increase in digital activity on all platforms in 2024, as detailed below:

PLATFORM	TOTAL FOLLOWERS AS AT 31.12.2024	TOTAL FOLLOWERS AS AT 31.12.2023	GROWTH COMPARED WITH THE PREVIOUS YEAR
X (FORMERLY TWITTER)	8,443	8,361	1%
LINKEDIN	36,051	29,307	23%
INSTAGRAM	3,141	2,745	14%
FACEBOOK	3,017	2,918	3%
YOUTUBE	609	419	45%
NEWSLETTER	1,459	1,246	17%

2.2.5 INTELLECTUAL CAPITAL

Organisational and knowledge-based intangibles, including:

- Copyrights, software, rights and licences
- 'Organisational capital' as tacit knowledge, systems, procedures and protocols

In 2024, HT-affiliated researchers achieved numerous significant scientific results in their respective fields of study, resulting in a total of **190 publications** in renowned international journals, including 2 publications in the form of chapters in scientific dissemination books.

Details of these publications by Research Centre and National Facility are given below.

GENOMICS CENTRE

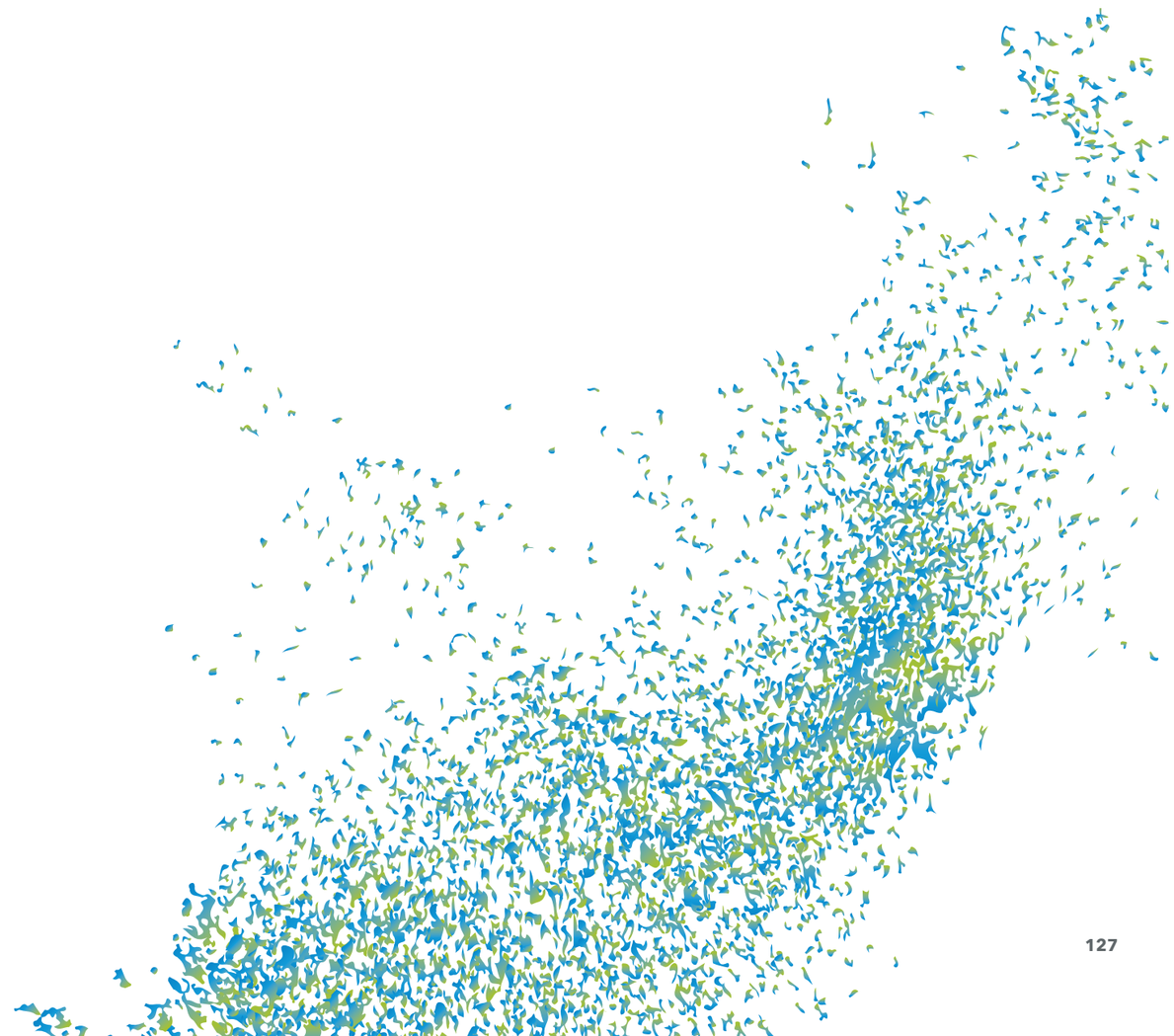
TITLE	AUTHORS	JOURNAL
Emerging methods and applications in 3D genomics	**S. Pedrotti**, **I. Castiglioni**, C. Perez-Estrada, L. Zhao, J. P. Chen, **N. Crosetto**, **M. Bienko**	*Current Opinion in Cell Biology*
Deconwolf enables high-performance deconvolution of widefield fluorescence microscopy images	E. Wernersson, E. Gelali, G. Girelli, S. Wang, ..., **N. Crosetto**, **M. Bienko**	*Nature Methods*
scCircle-seq unveils the diversity and complexity of extrachromosomal circular DNAs in single cells	J. P. Chen, C. Diekmann, H. Wu, C. Chen, **G. Della Chiara**, ..., **M. Virdi**, ..., **M. Bienko**, **N. Crosetto**	*Nature Communications*
High-quality peptide evidence for annotating non-canonical open reading frames as human proteins	E. W. Deutsch, L. W. Kok, J. M. Mudge, J. Ruiz-Orera, I. Fierro-Monti, Z. Sun, ..., **L. Calviello**, et al.	*bioRxiv*
A ubiquitous GC content signature underlies multimodal mRNA regulation by DDX3X	Z. Jowhar, A. Xu, S. Venkataramanan, **F. Dossena**, M. L. Hoye, D. L. Silver, S. N. Floor, **L. Calviello**	*EMBO Molecular Systems Biology*
Drosophila Piwi distinguishes transposons from mRNAs by piRNA complementarity and abundance	M. Ariura, T. Solberg, H. Ishizu, H. Takahashi, **P. Carninci**, H. Siomi, Y. W. Iwasaki	*Cell Reports*

TITLE	AUTHORS	JOURNAL
RADIP technology comprehensively identifies H3K27me3-associated RNA-chromatin interactions	X. Shu, M. Kato, S. Takizawa, Y. Suzuki, **P. Carninci**	*Nucleic Acid Research*
The commitment of the human cell atlas to humanity	I. Amit, K. Ardlie, F. Arzuaga, G. Awandare, G. Bader, A. Bernier, **P. Carninci**, et al.	*Nature Communications*
Widespread 3'UTR capped RNAs derive from G-rich regions in proximity to AGO2 binding sites	N. Haberman, H. Digby, R. Faraway, R. Cheung, A. M. Chakrabarti, A. M. Jobbins, C. Parr, K. Yasuzawa, T. Kasukawa, C. W. Yip, M. Kato, H. Takahashi, **P. Carninci,** et al.	*BMC Biology*
Biallelic GGGCC repeat expansion leading to NAXE-related mitochondrial encephalopathy	K. Ozaki, Y. Yatsuka, Y. Oyazato, A. Nishiyama, K. R. Nitta, ..., **P. Carninci**, et al.	*NPJ Genomic Medicine*
Compared to other NHEJ factors, DNA-PK protein and RNA levels are markedly increased in all higher primates, but not in prosimians or other mammals	G. Pascarella, K. N. Conner, N. J. Goff, **P. Carninci**, A. J. Olive, K. Meek	*DNA Repair*
An atlas of transcribed enhancers across helper T cell diversity for decoding human diseases	A. Oguchi, A. Suzuki, S. Komatsu, H. Yoshitomi, S. Bhagat, …, **P. Carninci**, et al.	*Science*
Systematic assessment of long-read RNA-seq methods for transcript identification and quantification	F. J. Pardo-Palacios, D. Wang, F. Reese, M. Diekhans, S. Carbonell-Sala, …, **P. Carninci**, et al.	*Nature Methods*
CapTrap-seq: a platform-agnostic and quantitative approach for high-fidelity full-length RNA sequencing	S. Carbonell-Sala, T. Perteghella, J. Lagarde, H. Nishiyori, E. Palumbo, C. Arnan, H. Takahashi, **P. Carninci**, B. Uszczynska-Ratajczak, R. Guigó	*Nature Communications*
Annotation of nuclear lncRNAs based on chromatin interactions	S. Agrawal, A. Buyan, J. Severin, M. Koido, T. Alam, …, **P. Carninci**, Mi. J. L. de Hoon	*PLoS One*
Decryption of sequence, structure, and functional features of SINE repeat elements in SINEUP non-coding RNA-mediated post-transcriptional gene regulation	H. Sharma, M. N. Z. Valentine, N. Toki, H. Nishiyori Sueki, S. Gustincich, H. Takahashi, **P. Carninci**	*Nature Communications*
CFC-seq: identification of full-length capped RNAs unveil enhancer-derived transcription	C. W. Yip, C. Parr, H. Takahashi, K. Yasuzawa, M. Valentine, ..., **R. Albanese**, **F. Dossena**, ...**L. Calviello**, **M. Bienko**, **I. Legnini**, …, **P. Carninci**	*bioRxiv*
Challenges in Detecting Somatic Recombination of Repeat Elements: Insights from Short and Long Read Datasets	G. Pascarella, M. Frith, **P. Carninci**	*bioRxiv*
Single-cell analysis of human diversity in circulating immune cells	K. H. Kock, L. M. Tan, K. Y. Han, Y. Ando, …, **P. Carninci**, et al.	*bioRxiv*

TITLE	AUTHORS	JOURNAL
Integrative Transcriptomics Reveals Layer 1 Astrocytes Altered in Schizophrenia	J. Leon, S. Yoshinaga, Mi. Hino, A. Nagaoka, Y. Ando, …, **P. Carninci**, et al.	*bioRxiv*
Self-supervised learning for characterising histomorphological diversity and spatial RNA expression prediction across 23 human tissue types	**F. Cisternino**, **S. Ometto**, **S. Chatterjee**, **E. Giacopuzzi**, A. P. Levine, **C. A. Glastonbury**	*Nature Communications*
Unsupervised cardiac MRI phenotyping with 3D diffusion autoencoders reveals novel genetic insights	**S. Ometto**, **S. Chatterjee**, A. M. Vergani, **A. Landini**, **S. Sharapov**, **E. Giacopuzzi, A. Visconti**, **E. Bianchi**, **F. Santonastaso**, **E. M. Soda**, **F. Cisternino**, **F. Ieva**, **E. Di Angelantonio**, **N. Pirastu**, and **C. A. Glastonbury**	*medRxiv*
Mutant huntingtin impairs neurodevelopment in human brain organoids through CHCHD2-mediated neurometabolic failure	P. Lisowski, S. Lickfett, A. Rybak-Wolf, C. Menacho, …, **I. Legnini**, et al.	*Nature Communications*
Recurrent evolution and selection shape structural diversity at the amylase locus	**D. Bolognini**, A. Halgren, R. N. Lou , **A. Raveane**, J. L. Rocha, A. Guarracino, **N. Soranzo**, C. Chin, E. Garrison, P. H. Sudmant	*Nature*
Inherited polygenic effects on common hematological traits influence clonal selection on JAK2V617F and the development of myeloproliferative neoplasms	J. Guo, K. Walter, P. M. Quiros, M. Gu, E. J. Baxter, J. Danesh, **E. Di Angelantonio**, …, **N. Soranzo**	*Nature Genetics*
Building pangenome graphs	E. Garrison, **A. Guarracino**, S. Heumos, F. Villani, Z. Bao, L. Tattini, …, **N. Soranzo**, V. Colonna, R. W. Williams, P. Prins	*Nature Methods*
Misexpression of inactive genes in whole blood is associated with nearby rare structural variants	T. Vanderstichele, K. L. Burnham, N. de Klein, **M. Tardaguila**, …, **E. Di Angelantonio**, …, **N. Soranzo**, L. Parts, M. Inouye, D. S. Paul, E. E. Davenport	*AJHG*
CDK12 controls transcription at damaged genes and prevents MYC-induced transcription-replication conflicts	L. Curti, S. Rohban, N. Bianchi, O. Croci, A. Andronache, …, **N. Crosetto**, M. Wade, D. Parazzoli, S. Campaner	*Nature Communications*
High clonal diversity and spatial genetic admixture in early prostate cancer and surrounding normal tissue	N. Zhang, L. Harbers, M. Simonetti, C. Diekmann, …, **M. Bienko**, **N. Crosetto**	*Nature Communications*
X-chromosome and kidney function: evidence from a multi-trait genetic analysis of 908,697 individuals reveals sex-specific and sex-differential findings in genes regulated by androgen response elements	M. Scholz, K. Horn, J. Pott, M. Wuttke, …, **N. Pirastu**, et al.	*Nature Communications*

TITLE	AUTHORS	JOURNAL
Opportunities and tradeoffs in single-cell transcriptomic technologies	**M. I. Conte**, **A. Fuentes-Trillo**, **C. Domínguez Conde**	*Trends in Genetics*
Novel Endogenous Engineering Platform for Robust Loading and Delivery of Functional mRNA by Extracellular Vesicles	A. M. Zickler, X. Liang, D. Gupta, D. R. Mamand, **M. De Luca**, et al.	*Advanced Science*
MedShapeNet - a large-scale dataset of 3D medical shapes for computer vision	J. Li, Z. Zhou, J. Yang, A. Pepe, C. Gsaxner, …., **S. Chatterjee**, et al.	*Biomedical Engineering / Biomedizinische Technik*
Beyond Nyquist: A Comparative Analysis of 3D Deep Learning Models Enhancing MRI Resolution	**S. Chatterjee**, A. Sciarra, M. Dünnwald, A. Bhat Talagini Ashoka, et al.	*Journal of imaging*
VesselBoost: A Python Toolbox for Small Blood Vessel Segmentation in Human Magnetic Resonance Angiography Data	M. Xu, F. L. Ribeiro, M. Barth, M. Bernier, S. Bollmann, **S. Chatterjee**, et al.	*bioRxiv*
HSP and CD279 gene expression as candidate biomarkers in symptomatic LGLL patients	G. Talarico, A. Franceschin, **A. Raveane**, P. Falvo, S. Mazzara, F. Melle, G. Motta, S. Orecchioni, A. Tenore, G. Gregato, C. Poletti, R. Chiarle, S. Pileri, P.Mancuso, F. Bertolini	*Discover Oncology*
Clinical and genetic characterization of a progressive RBL2-associated neurodevelopmental disorder	G. N. Aughey, E. Cali, R. Maroofian, M. S. Zaki, A. T. Pagnamenta, …, **E. Giacopuzzi**, et al.	*Brain*
Bi-allelic genetic variants in the translational GTPases GTPBP1 and GTPBP2 cause a distinct identical neurodevelopmental syndrome	V. Salpietro, R. Maroofian, M. S. Zaki, J. Wangen, A. Ciolfi, …, **E. Giacopuzzi**, …, **A. T. Pagnamenta**, et al.	*AJHG*
Phage-resistance alters Lipid A reactogenicity: a new strategy for LPS-based conjugate vaccines against Salmonella Rissen	P. Cuomo, **C. Medaglia**, A. Casillo, A. Gentile, C. Fruggiero, M. M. Corsaro, R. Capparelli	*Frontiers in Immunology*
Impact of radiotherapy dose, fractionation and immunotherapeutic partner in a mouse model of HR+ mammary carcinogenesis	A. Buqué, N. Bloy, G. Petroni, C. Jiménez-Cortegana, A.Sato, C. Iribarren, T. Yamazaki, C. Galassi, M. Hensler, B. Bhinder, **A. Guarracino**, et al.	*Journal of the National Cancer Institute*
High-coverage nanopore sequencing of samples from the 1000 Genomes Project to build a comprehensive catalog of human genetic variation	J. A. Gustafson, S. B. Gibson, N. Damaraju, M. P.G. Zalusky, K. Hoekzema, ..., **A. Guarracino**, et al.	*Genome Research*

TITLE	AUTHORS	JOURNAL
Cluster-efficient pangenome graph construction with nf-core/pangenome	S. Heumos, M.L. Heuer, F. Hanssen, L. Heumos, **A. Guarracino**, P. Heringer, P. Ehmele, P. Prins, E. Garrison, S. Nahnsen	*Bioinformatics*
Pangenome graph layout by Path-Guided Stochastic Gradient Descent	S. Heumos, **A. Guarracino**, J. M. Schmelzle, J. Li, Z. Zhang, J. Hagmann, S. Nahnsen, P. Prins, E. Garrison	*Bioinformatics*
A proinflammatory stem cell niche drives myelofibrosis through a targetable galectin-1 axis	R. Li, **M. Colombo**, G. Wang, A. Rodriguez-Romera, C. Benlabiod	*Science Translational Medicine*



NEUROGENOMICS CENTRE

TITLE	AUTHORS	JOURNAL
Single-cell multiregion dissection of Alzheimer's disease	H. Mathys, C. A. Boix, L. A. Akay, Z. Xia, **J. Davila-Velderrain**, et al.	*Nature*
Single-cell multi-cohort dissection of the schizophrenia transcriptome	W. B. Ruzicka, S. Mohammadi, J. F Fullard, **J. Davila-Velderrain**, …, P. Roussos, M. Kellis; PsychENCODE Consortium	*Science*
WWOX deficiency impairs neurogenesis and neuronal function in human organoids	D. Steinberg, **A. Zonca**, I.Rosh, I. Kustanovich, K. Maroun, S. Stern, **J. Davila-Velderrain**, R. Aqeilan	*bioRxiv*
SARS-CoV-2 brainstem encephalitis in human inherited DBR1 deficiency	Y. Chan, V. Lundberg, J. Le Pen, J. Yuan, D. Lee, **F. Pinci**, …, **O. Harschnitz**, C. M. Rice, L. Studer, J. Casanova, O. Ekwall, S. Zhang	*Journal of Experimental Medicine*
Human TMEFF1 is a restriction factor for herpes simplex virus in the brain	Y. Chan, Z. Liu, P. Bastard, N. Khobrekar, K. M. Hutchison, Y. Yamazaki, Q. Fan, D. Matuozzo, **O. Harschnitz**, et al.	*Nature*
SARS-CoV-2 infection causes dopaminergic neuron senescence	L. Yang, T. W. Kim, Y. Han, M. S. Nair, **O. Harschnitz**, J. Zhu, et al.	*Cell Stem Cell*
Morphoregulatory ADD3 underlies glioblastoma growth and formation of tumor-tumor connections	**C. Barelli**, **F. K. Don**, **R. M. Iannuzzi**, **S. Faletti**, **I. Bertani**, **I. Osei**, S. Sorrentino, **G. Villa**, **V. Sokolova**, **A. Campione**, M. R. Minotti, G. M. Sicuri, R. Stefini, **F. Iorio**, **N. Kalebic**	*bioRxiv*
Adducins regulate morphology and fate of neural progenitors during neocortical neurogenesis	**C. Ossola**, **N. Cokorac**, **S. Faletti**, **E. Capra**, **I. Bertani**, **C. Ambrosini**, **G. Fagà**, **N. Kalebic**	*bioRxiv*
A framework for neural organoids, assembloids and transplantation studies	S. P. Paşca, P. Arlotta, H. S. Bateup, J. G. Camp, S. Cappello, …, **G. Testa**, et al.	*Nature*
A polarized FGF8 source specifies frontotemporal signatures in spatially oriented cell populations of cortical assembloids	C. Bosone, **D. Castaldi**, T. R. Burkard, S. J. Guzman, T. Wyatt, **C. Cheroni**, **N. Caporale**, S. Bajaj, J. A. Bagley, C. Li, B. Sorre, **C. E. Villa**, **G. Testa**, V. Krenn, J. A. Knoblich	*Nature Methods*
A multi-layered integrative analysis reveals a cholesterol metabolic program in outer radial glia with implications for human brain evolution	J. Moriano, O. Leonardi, **A. Vitriolo**, **G. Testa**, C. Boeckx	*Development*
Engineering Toxoplasma gondii secretion systems for intracellular delivery of multiple large therapeutic proteins to neurons	S. Bracha, H. J. Johnson, N. A. Pranckevicius, F. Catto, ..., **M. T. Rigoli**, **C. Cheroni**, **M. Bonfanti**, **A. Valenti**, **S. Stucchi**, ..., **N. Caporale**, **G. Testa**, A. Aguzzi, A. A. Koshy, L. Sheiner, Oded Rechavi	*Nature Microbiology*
miRNA-mediated inhibition of an actomyosin network in hippocampal pyramidal neurons restricts sociability in adult male mice	R. Narayanan, B. Rocha Levone, J. Winterer, P. Nanda, A. Müller, T. Lobriglio, R. Fiore, P. Germain, **M. Mihailovich**, **G. Testa**, G. Schratt	*Cell Reports*
Multiscale modeling uncovers 7q11.23 copy number variation-dependent changes in ribosomal biogenesis and neuronal maturation and excitability	**M. Mihailovich**, P. Germain, **R. Shyti**, D. Pozzi, R. Noberini, Y. Liu, **D. Aprile**, E. Tenderini, **F. Troglio**, **S. Trattaro**, S. Fabris, U. Ciptasari, **M. T. Rigoli**, **N. Caporale**, G. D'Agostino, **F. Mirabella**, **A. Vitriolo**, **D. Capocefalo**, **A. Skaros**, A. V. Franchini, S. Ricciardi, I. Biunno, A. Neri, N. N. Kasri, T. Bonaldi, R. Aebersold, M. Matteoli, **G. Testa**	*Journal of Clinical Investigation*

TITLE	AUTHORS	JOURNAL
Tracing the invisible mutant ADNP protein in Helsmoortel-Van der Aa syndrome patients	C. P. D'Incal, E. Cappuyns, K. Choukri, K. De Man, K. Szrama, …, **A. Vitriolo**, **G. Testa**, et al.	*Scientific Reports*
In and out: Benchmarking in vitro, in vivo, ex vivo, and xenografting approaches for an integrative brain disease modeling pipeline	**M. F. Pereira**, **R. Shyti**, **G. Testa**	*Stem Cell Reports*
YY1 mutations disrupt corticogenesis through a cell-type specific rewiring of cell-autonomous and non-cell-autonomous transcriptional programs	**M. F. Pereira**, **V. Finazzi**, **L. Rizzuti**, **D. Aprile**, **V. Aiello**, L. Mollica, M. Riva, C. Soriani, **F. Dossena**, **R. Shyti**, **D. Castaldi**, E. Tenderini, M. T. Carminho-Rodrigues, J. F. Bally, B. B. A. de Vries, M. Gabriele, **A. Vitriolo**, **G. Testa**	*bioRxiv*
Curation of causal interactions mediated by genes associated with autism accelerates the understanding of gene-phenotype relationships underlying neurodevelopmental disorders	M. Iannuccelli, **A. Vitriolo**, **L. Licata**, **P. Lo Surdo**, S. Contino, **C. Cheroni**, **D. Capocefalo**, L. Castagnoli, **G. Testa**, G. Cesareni, **L. Perfetto**	*Molecular Psychiatry*
An integrated transcriptomic cell atlas of human neural organoids	Z. He, L. Dony, J. S. Fleck, A.r Szałata, K. X. Li, I. Slišković, H. Lin, Ma.Santel, A. Atamian, G. Quadrato, J. Sun, S. P. Paşca, **Human Cell Atlas Organoid Biological Network***, J. Gray Camp, F. J. Theis, B. Treutlein	*Nature*
Different Names for the Same Thing? Novelty, Expectations, and Performative Nominalism in Personalized and Precision Medicine	I. Galasso, S. Erikainen, M. Pickersgill and **G. Testa**	*Social Theory and Health*
TBC1D24 interacts with the v-ATPase and regulates intraorganellar pH in neurons	S. Pepe, **D. Aprile**, E. Castroflorio, A. Marte, S. Giubbolini, S. Hopestone, A. Parsons, T. Soares, F. Benfenati, P. L. Oliver, A. Fassio	*iScience*
Tumor microenvironment-induced FOXM1 regulates ovarian cancer stemness	C. Battistini, H. A. Kenny, M. Zambuto, V. Nieddu, V. Melocchi, A. Decio, P. Lo Riso, **C. E. Villa**, et al.	*Cell Death & Disease*
Genetic barriers more than environmental associations explain Serratia marcescens population structure	L. Sterzi, R. Nodari, F. Di Marco, M. L. Ferrando, F. Saluzzo, **A. Spitaleri**, et al.	*Communications Biology*
The Microbiome-Genetics Axis in Autism Spectrum Disorders: A Probiotic Perspective	**M. Mihailovich**, M. Tolinački, S. Soković Bajić, S. Lestarevic, M. Pejovic-Milovancevic, N. Golić	*International Journal of Molecular Sciences*
Cutting-Edge iPSC-Based Approaches in Studying Host-Microbe Interactions in Neuropsychiatric Disorders	**M. Mihailovich**, S. Soković Bajić, M. Dinić, J. Đokić, M. Živković, D. Radojević, N. Golić	*International Journal of Molecular Sciences*

STRUCTURAL BIOLOGY CENTRE

TITLE	AUTHORS	JOURNAL
Cryo-EM structure of bacterial nitrilase reveals insight into oligomerization, substrate recognition, and catalysis	S. Aguirre-Sampieri, **A. Casañal**, P. Emsley, G. Garza-Ramos	*Journal of Structural Biology*
Molecular mechanism of thyroxine transport by monocarboxylate transporters	**M. Tassinari**, **G. Tanzi**, **F. Maggiore**, S. Groeneweg, F. S. van Geest, M. Freund, C. J. Stavast, I. Boniardi, **S. Pasqualato**, W. E. Visser, **F. Coscia**	*bioRxiv*
TOMOMAN: a software package for large-scale cryo-electron tomography data preprocessing, community data sharing and collaborative computing	S. Khavnekar, **P. S. Erdmann**, W. Wan	*Journal of Applied Cristallography*
Serialized on-grid lift-in sectioning for tomography (SOLIST) enables a biopsy at the nanoscale	**H. T. D. Nguyen**, **G. Perone**, **N. Klena**, **R. Vazzana**, **F. K. Don**, **M. Silva**, **S. Sorrentino**, **P. Swuec**, F. Leroux, **N. Kalebic**, **F. Coscia**, **P. S. Erdmann**	*Nature Methods*
The intraflagellar transport cycle	**S. E. Lacey**, **G. Pigino**	*Nature Reviews Molecular Cell Biology*
Structure, interaction and nervous connectivity of beta cell primary cilia	A. Müller, **N. Klena**, S. Pang, L. E. Galicia Garcia, …, **G. Pigino**, M. Solimena	*Nature Communications*
Protofilament-specific nanopatterns of tubulin post-translational modifications regulate the mechanics of ciliary beating	**G. Alvarez Viar**, **N. Klena**, **F. Martino**, A. P. Nievergelt, **D. Bolognini**, **P. Capasso**, **G. Pigino**	*Current Biology*
Extensive structural rearrangement of intraflagellar transport trains underpins bidirectional cargo transport	**S. E. Lacey**, **A. Graziadei**, **G. Pigino**	*Cell*
Tubulin posttranslational modifications through the lens of new technologies	**G. Alvarez Viar, G. Pigino**	*Current Opinion in Cell Biology*
Protocol for precision editing of endogenous Chlamydomonas reinhardtii genes with CRISPR-Cas	**A. P. Nievergelt**, D. R. Diener, A. Bogdanova, T. Brown, **G. Pigino**	*STAR Protocol*
Condensin II activation by M18BP1	A. Borsellini, D. Conti, E. Cutts, R. J. Harris, K. Walstein, **A. Graziadei**, **V. Cecatiello**, …, **A. Vannini**	*bioRxiv*
Structural insights into distinct mechanisms of RNA polymerase II and III recruitment to snRNA promoters	**S. Zawar Shah**, **T. N. Perry**, **A. Graziadei**, **V. Cecatiello**, T. Kaliyappan, A. D. Misiaszek, C. W. Müller,E. P. Ramsay, **A. Vannini**	*bioRxiv*
A substrate-interacting region of Parkin directs ubiquitination of the mitochondrial GTPase Miro1	J. Koszela, A. Rintala-Dempsey, **G. Salzano**, V. Pimenta, O. Kamarainen, M. Gabrielsen, A. L. Parui, G. S. Shaw, H. Walden	*bioRxiv*
System-wide analysis of RNA and protein subcellular localization dynamics	E. Villanueva, T. Smith, **M. Pizzinga**, M. Elzek, R. M. L Queiroz	*Nature Methods*

COMPUTATIONAL BIOLOGY CENTRE

TITLE	AUTHORS	JOURNAL
Benchmark Software and Data for Evaluating CRISPR-Cas9 Experimental Pipelines Through the Assessment of a Calibration Screen	**R. M. Iannuzzi**, I. Manipur, C. Pacini, F. M. Behan, M. R. Guarracino, M. J. Garnett, **A. Savino**, **F. Iorio**	*The CRISPR Journal*
Integrative ensemble modelling of cetuximab sensitivity in colorectal cancer patient-derived xenografts	**U. Perron**, E. Grassi, A. Chatzipli, M. Viviani, E. Karakoc, **L. Trastulla**, **L. M. Brochier**, ..., **F. Iorio**	*Nature Communications*
An unbiased lncRNA dropout CRISPR-Cas9 screen reveals RP11-350G8.5 as a novel therapeutic target for multiple myeloma	K. Grillone, S. Ascrizzi, **P. Cremaschi**, J. Amato, N. Polerà, O. Croci, R. Rocca, C. Riillo, F. Conforti, R. Graziano, D. Brancaccio, D. Caracciolo, S. Alcaro, B. Pagano, A. Randazzo, P. Tagliaferri, **F. Iorio**, P. Tassone	*Blood*
A benchmark of computational methods for correcting biases of established and unknown origin in CRISPR-Cas9 screening data	**A. Vinceti**, **R. M. Iannuzzi**, I. Boyle, **L. Trastulla**, C. D. Campbell, F. Vazquez, J. M. Dempster, **F. Iorio**	*Genome Biology*
Distinct genetic liability profiles define clinically relevant patient strata across common diseases	**L. Trastulla**, G. Dolgalev, S. Moser, L. T. Jiménez-Barrón, …, **F. Iorio**, B. Müller-Myhsok, H. Schunkert, M. J. Ziller	*Nature Communications*
A comprehensive clinically informed map of dependencies in cancer cells and framework for target prioritization	C. Pacini, E. Duncan, E. Gonçalves, J. Gilbert, S. Bhosle, …, **F. Iorio**, M. J. Garnett	*Cancer Cell*
The crucial role of bioimage analysts in scientific research and publication	B. A. Cimini, P. Bankhead, R. D'Antuono, E. Fazeli, J. Fernandez-Rodriguez, …, **F. Jug**, et al.	*Journal of Cell Science*
Mechanical and biochemical feedback combine to generate complex contractile oscillations in cytokinesis	M. E. Werner, D. D. Ray, C. Breen, M. F. Staddon, **F. Jug**, S. Banerjee, A. Shaub Maddox	*Current Biology*
Live-cell imaging powered by computation	H. Shroff, I. Testa, **F. Jug**, S. Manley	*Nature Reviews Molecular Cell Biology*
Bioprinting Soft 3D Models of Hematopoiesis using Natural Silk Fibroin-Based Bioink Efficiently Supports Platelet Differentiation	C. A. Di Buduo, M. Lunghi, V. Kuzmenko, P Laurent, G. Della Rosa, C. Del Fante, **D. E. Dalle Nogare**, **F. Jug**, et al.	*Advanced Science*
MicroSSIM: Improved Structural Similarity for Comparing Microscopy Data	**Ashesh, J. Deschamps, F. Jug**	*ECV 2024 Workshops*
denoiSplit: A Method for Joint Microscopy Image Splitting and Unsupervised Denoising	**Ashesh, F. Jug**	*ECCV 2024*
Community-developed checklists for publishing images and image analyses	**C. Schmied**, M. S. Nelson, S. Avilov, G. Bakker, …, **F. Jug**, et al.	*Nature Methods*
Enabling Global Image Data Sharing in the Life Sciences	P. Bajcsy, S. Bhattiprolu, K. Boerner, B. A. Cimini, L. Collinson, J. Ellenberg, R. Fiolka, M. Giger, W. Goscinski, M. Hartley, N. Hotaling, R. Horwitz, **F. Jug**, et al.	*arxiv*

TITLE	AUTHORS	JOURNAL
CALIPERS: Cell cycle-aware live imaging for phenotyping experiments and regeneration studies	M. Di Sante, M. Pezzotti, J. Zimmermann, A. Enrico, **J. Deschamps**, E. Balmas, S. Becca, A. Reali, A. Bertero, **F. Jug**, F. S. Pasqualini	*bioRxiv*
FeatureForest: the power of foundation models, the usability of random forests	M. Seifi, **D. Dalle Nogare**, **J. Battagliotti**, V. Galinova, A. K. Rao, AI4Life Horizon Europe Programme Consortium4, J. Decelle, **F. Jug**, and **J. Deschamps**	*bioRxiv*
Hijacking and Integration of Algal Plastids and Mitochondria in a Polar Planktonic Host	A. K. Rao, D. Yee1, F. Chevalier, C. LeKieffre, M. Pavie, Marine Olivetta, O. Dudin, B. Gallet, E. Hehenberger, **M. Seifi**, **F. Jug**, **J. Deschamps**, T. Wu, R. Gast, P. Jouneau, J. Decelle	*bioRxiv*
Local DNA compaction creates TF-DNA clusters that enable transcription	N. M. Chabot, R. Purkanti, A. Del Panta Ridolfi, **D. Dalle Nogare**, H. Oda, H. Kimura, **F. Jug**, A. Dal Co, Nadine L. Vastenhouw	*bioRxiv*
Predicting the evolution of antibiotic resistance	**F. Pinheiro**	*Current Opinion in Microbiology*
Resource allocation in biochemically structured metabolic networks	L. Seegera**, F. Pinheiro,** M. Lassiga	*bioRxiv*
Kinbiont: From time series to ecological and evolutionary responses in microbial systems	**F. Angaroni, A. Peruzzi,** E. Z. Alvarenga**,** and **F. Pinheiro**	*bioRxiv*
Stratified Medicine Paediatrics: Cell free DNA and serial tumour sequencing identifies subtype specific cancer evolution and epigenetic states	S. L. George, C. Lynn, R. Stankunaite, D. Hughes, C. M. Sauer, J. Chalker, …, **A. Sottoriva**, L. Chesler	*Cancer Discovery*
Circulating tumor DNA dynamics and clinical outcome in metastatic colorectal cancer patients undergoing front-line chemotherapy	M. Ghidini, J. C. Hahne, C. Senti, T. Heide, P. Z. Proszek, …, **A. Sottoriva**, R. Passalacqua, N. Valeri	*Clinical Cancer Research*
The genomic landscape of 2,023 colorectal cancers	A. J. Cornish, A. J. Gruber, B. Kinnersley, …, **A. Sottoriva**, T. A. Graham, D. C. Wedge, R. S. Houlston	*Nature*
Tumor evolution metrics predict recurrence beyond 10 years in locally advanced prostate cancer	J. Fernandez-Mateos, G. D. Cresswell, N. Trahearn, …, **T. Heide**, …, **A. Sottoriva**	*Nature Cancer*
Homopolymer switches mediate adaptive mutability in mismatch repair-deficient colorectal cancer	H. Kayhanian, W. Cross, S. E. M. van der Horst, P. Barmpoutis, **A. Sottoriva**, T. A. Graham, M. Rodriguez-Justo, K. Shiu, H. J. G. Snippert, M. Jansen	*Nature Genetics*
Immune evasion impacts the landscape of driver genes during cancer evolution	L. Gourmet, **A. Sottoriva**, S. Walker-Samuel, M. Secrier, L. Zapata	*Genome Biology*
Phenotypic noise and plasticity in cancer evolution	F. J. H. Whiting, J. Househam, A. Baker, **A. Sottoriva**, T. A. Graham	*Trends in Cell Biology*
Long-term Multimodal Recording Reveals Epigenetic Adaptation Routes in Dormant Breast Cancer Cells	D. Rosano, E. Sofyali, H. Dhiman, C. Ghirardi, D. Ivanoiu, **T. Heide**, ..., **C. James**, ..., **A. Sottoriva**, L. Magnani	*Cancer Discovery*
Epigenome and early selection determine the tumour-immune evolutionary trajectory of colorectal cancer	E. Lakatos, V. Gunasri, L. Zapata, J. Househam, **T. Heide**, …, **A. Sottoriva**, T. A. Graham	*bioRxiv*

TITLE	AUTHORS	JOURNAL
Cancer Evolution: A Multifaceted Affair	G. Ciriello, L. Magnani, S. J. Aitken, L. Akkari, **A. Sottoriva**, Alexander Swarbrick, Giovanni Tonon, Sakari Vanharanta, Johannes Zuber	*Cancer Discovery*
NeuroVelo: interpretable learning of temporal cellular dynamics from single-cell data	I. K. Boudjelthia, **S. Milite**, N. El Kazwini, Y. Huang, **A. Sottoriva**, G. Sanguinetti	*Research Square*
Deep Archetypal Analysis for interpretable multi-omic data integration based on biological principles	**S. Milite**, G. Caravagna, **A. Sottoriva**	*bioRxiv*
Long deletion signatures in repetitive genomic regions track somatic evolution and enable sensitive detection of microsatellite instability	Q. Guo, J. Househam, E.Lakatos, S. Nowinski, I. Al Bakir, …, **A. Sottoriva**, et al.	*bioRxiv*
Heterogeneity and evolution of DNA mutation rates in microsatellite stable colorectal cancer	E. Grassi, V. Vurchio, G. D. Cresswell, I. Catalano, …, **A. Sottoriva**, et al.	*bioRxiv*
Differential activity of MAPK signalling defines fibroblast subtypes in pancreatic cancer	L. Veghini, D. Pasini, R. Fang, P. Delfino, D. Filippini, C. Neander, …, **S. D'Agosto**, et al.	*Nature Communications*
Computational validation of clonal and subclonal copy number alterations from bulk tumor sequencing using CNAqc	A. Antonello, R. Bergamin, N. Calonaci, J. Househam, **S. Milite**, et al.	*Genome Biology*
Clinical application of tumour-in-normal contamination assessment from whole genome sequencing	J. Mitchell, **S. Milite**, J. Bartram, S. Walker, et al.	*Nature Communications*

HEALTH DATA SCIENCE

TITLE	AUTHORS	JOURNAL
Risks of major arterial and venous thrombotic diseases after hospitalisation for influenza, pneumonia, and COVID-19: A population-wide cohort in 2.6 million people in Wales	S. Keene, H. Abbasizanjani, F. Torabi, R. Knight, V. Walker, E. Raffetti, G. Cezard, S. Ip 7, A. Sampri, T. Bolton, R. Denholm, K. Khunti, A. Akbari, J. Quint, S. Denaxas, C. Sudlow, **E. Di Angelantonio**, J. A. C. Sterne, A. Wood, W. N. Whiteley; CVD-COVID-UK/COVID-IMPACT Consortium and the Longitudinal Health and Wellbeing COVID-19 National Core Study	*Thrombosis Research*
Leucocyte telomere length and conduction system ageing	S. van Duijvenboden, C. P. Nelson, Z. Raisi-Estabragh, J. Ramirez, M. Orini, Q. Wang, N. Aung, V. Codd, S. Stoma, E. Allara, A. M. Wood, **E. Di Angelantonio**, J. Danesh, N. C. Harvey, S. E. Petersen, P. B. Munroe, N. J. Samani	*Heart*
Assessing the kinetics of oxygen-unloading from red cells using FlowScore, a flow-cytometric proxy of the functional quality of blood	J. Rabcuka, P. A. Smethurst, K. Dammert, J. Saker, G. Aran, G. M. Walsh 5, **E. Di Angelantonio**, D. J. Roberts, S. Blonski, P. M. Korczyk, A. Shirakami, R. Cardigan, P. Swietach	*eBioMedicine*
Novel loci and biomedical consequences of iron homoeostasis variation	E. Allara, S. Bell, R. Smith, S. J. Keene, …, **N. Pirastu**, …, **E. Di Angelantonio**	*Communications Biology*

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Polygenic Prediction of Recurrent Events After Early-Onset Myocardial Infarction	M. Ardissino, E. M. Paraboschi, S. A. Lambert, L. G. Kim, …, **E. Di Angelantonio**, R. Asselta, D. Ardissino, A. S. Butterworth	*Circulation: Genomics and Precision Medicine*
Risk factors for vasovagal reactions in blood donors: A systematic review and meta-analysis	Y. Wu, H. Qi, **E. Di Angelantonio**, S. Kaptoge, A. M. Wood, L. G. Kim	*Trasfusion*
Contemporary epidemiology of hospitalised heart failure with reduced versus preserved ejection fraction in England: a retrospective, cohort study of whole-population electronic health records	R. A. Fletcher, P. Rockenschaub, B. L. Neuen, I. J. Walter, N. Conrad, …, **E. Di Angelantonio**, et al.	*The Lancet Public Health*
The power of arts-based film interventions to encourage Black blood donors	R. Mills, A. Okubanjo, N. Acheampong, M. Croucher, N. Eaton, A. Kazi, **E. Di Angelantonio**, A. Wood, B. Masser, E. Ferguson	*Transfusion*
The European Health Data Space can be a boost for research beyond borders	A. Ganna, A. Carracedo, C. F. Christiansen, **E. Di Angelantonio**, Pearl A Dykstra, A. M. Dzhambov, R. Eils, S. Green, K. L. Schneider, T. V. Varga, A. Vuorinen, **L. Zuccolo**, N. H. Rod, K. Hoeyer	*Nature Medicine*
Association of circulating fatty acids with cardiovascular disease risk: Analysis of individual-level data in three large prospective cohorts and updated meta-analysis	F. Shi, R. Chowdhury, E. Sofianopoulou, A. Koulman, …, **E. Di Angelantonio**, et al.	*European Journal of Preventive Cardiology*
Integrated clinical risk prediction of type 2 diabetes with a multifactorial polygenic risk score	S. C. Ritchie, H. J. Taylor, Y. Liang, H. D. Manikpurage, …, **E. Di Angelantonio**, M. Inouye	*medRxiv*
Age and sex specific thresholds for risk stratification of cardiovascular disease and clinical decision making: prospective open cohort study	Z. Xu, J. Usher-Smith, L. Pennells, R. Chung, M. Arnold, L. Kim, S. Kaptoge, M. Sperrin, **E. Di Angelantonio**, A. M. Wood	*BMJ Medicine*
Risk estimation for the primary prevention of cardiovascular disease: considerations for appropriate risk prediction model selection	K. R. van Daalen, D. Zhang, S. Kaptoge, E. Paige, **E. Di Angelantonio**, L. Pennells	*The Lancet Global Health*
Genome-wide meta-analyses of restless legs syndrome yield insights into genetic architecture, disease biology and risk prediction	B. Schormair, C. Zhao, S. Bell, M. Didriksen, …, **E. Di Angelantonio**, K. Oexle, J. Winkelmann	*Nature Genetics*
Patent Foramen Ovale Closure in Older Patients With Stroke: Patient Selection for Trial Feasibility	A. Y. Wang, P. M. Rothwell, J. Nelson, J. L. Saver, S. E. Kasner, …, **E. Di Angelantonio**, et al.	*Neurology*
Genetically predicted plasma cortisol and common chronic diseases: A Mendelian randomization study	W. Lee, S. C. Larsson, A. Wood, **E. Di Angelantonio**, A. S. Butterworth, S. Burgess, E. Allara	*Clinical Endocrinology*
The value of genetic data from 665,460 individuals in managing iron deficiency anaemia and suitability to donate blood	J. Toivonen, E. Allara; FinnGen; J. Castrén, **E. Di Angelantonio**, M. Arvas	*Vox Sanguinis*

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Cardiovascular safety of assisted reproductive technology: a meta-analysis	C. A. Pivato., A. Inversetti, G. Condorelli, A. Chieffo, P. E. Levi-Setti, A. C. Latini, A. Busnelli, M. Messa, M. Cristodoro, R. M. Bragato, M. Francone, **L. Zuccolo**, **F. Ieva**, **E. Di Angelantonio**, G. Stefanini, N. Di Simone	*European Heart Journal*
Estimating dose-response relationships for vitamin D with coronary heart disease, stroke, and all-cause mortality: observational and Mendelian randomisation analyses	E Sofianopoulou, S K Kaptoge, S Afzal, T Jiang, D Gill, TE Gundersen, ..., **E. Di Angelantonio**, J Danesh, AS Butterworth, S Burgess	*The Lancet Diabetes & Endocrinology*
Association of circulating fatty acids with cardiovascular disease risk: Analysis of individual-level data in three large prospective cohorts and updated meta-analysis	F Shi, R Chowdhury, E Sofianopoulou, A Koulman, L Sun, M Steur, K Aleksandrova, CC Dahm, MB Schulze, YT van der Schouw, C Agnoli, P Amiano, ..., **E. Di Angelantonio**, NG Forouhi, J Danesh, AS Butterworth, S Kaptoge	*European Journal of Preventive Cardiology*
Misexpression of inactive genes in whole blood is associated with nearby rare structural variants	T Vanderstichele, KL Burnham, N de Klein, **M Tardaguila**, B Howell, K Walter, K Kundu, J Koeppel, …, **E. Di Angelantonio**, J Danesh, A Berton, A Platt, AS Butterworth, **N Soranzo**, L Parts, M Inouye, DS Paul, EE Davenport	*Am J Hum Genet*
CT-based radiogenomics of intrahepatic cholangiocarcinoma	L. Viganò, V. Zanuso, F. Fiz, L. Cerri, M. E. Laino, A. Ammirabile, E. M. Ragaini, S. Viganò, L. M. Terracciano, M. Francone, **F. Ieva**, L. Di Tommaso, L. Rimassa	*Digestive and Liver Disease*
Causal effect of chemotherapy received dose intensity on survival outcome: a retrospective study in osteosarcoma	M. Spreafico, **F. Ieva**, M. Fiocco	*BMC Medical Research Methodology*
Unveiling the biological side of PET-derived biomarkers: a simulation-based approach applied to PDAC assessment	L. Cavinato, J. Hong, M. Wartenberg, S. Reinhard, R. Seifert, P. Zunino, A. Manzoni, **F. Ieva**, A. Chiti, A. Rominger, K. Shi	*European Journal of Nuclear Medicine and Molecular Imaging*
Radiomics of Intrahepatic Cholangiocarcinoma and Peritumoral Tissue Predicts Postoperative Survival: Development of a CT-Based Clinical-Radiomic Model	F. Fiz, N. Rossi, S. Langella, S. Conci, M. Serenari, …, **F. Ieva**, L. Viganò	*Annals of Surgical Oncology*
Clinical and Genomic-Based Decision Support System to Define the Optimal Timing of Allogeneic Hematopoietic Stem-Cell Transplantation in Patients With Myelodysplastic Syndromes	C. A. Tentori, C. Gregorio, M. Robin, N. Gagelmann, C. Gurnari, …, **F. Ieva**, M. G. Della Porta; GenoMed4all and Synthema Consortiums	*Journal of Clinical Oncology*
Cost-effectiveness of single-pill and separate-pill administration of antihypertensive triple combination therapy: a population-based microsimulation study	G. Morabito, C. Gregorio, **F. Ieva**, G. Barbati, G. Mancia, G. Corrao, F. Rea	*BMC Public Health*
Flexible Approaches Based on Multistate Models and Microsimulation to Perform Real-World Cost-Effectiveness Analyses: An Application to Proprotein Convertase Subtilisin-Kexin Type 9 Inhibitors	C. Gregorio, F. Rea, **F. Ieva**, A. Scagnetto, C. Indennidate, C. Cappelletto, A. Di Lenarda, G. Barbati	*Value in Health*

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Personalized Timing for Allogeneic Stem-Cell Transplantation in Hematologic Neoplasms: A Target Trial Emulation Approach Using Multistate Modeling and Microsimulation	C. Gregorio, M. Spreafico, S. D'Amico, E. Sauta, …, **F. Ieva**	*JCO Clinical Cancer Informatics*
A NLP-based semi-automatic identification system for delays in follow-up examinations: an Italian case study on clinical referrals	V. Torri, M. Ercolanoni, F. Bortolan, O. Leoni, **F. Ieva**	*BMC Medical Informatics and Decision Making*
Patients' Radiation Exposure During Endovascular Abdominal Aortic Aneurysm Repair	T. J. Mandigers, I. Fulgheri, G. Pugliese, D. Bissacco, **L. Savarè**, **F. Ieva**, M. Campoleoni, J. A. van Herwaarden, S. Trimarchi, M. Domanin	*Annals of Vascular Surgery*
Estimation of Dynamic Origin-Destination Matrices in a Railway Transportation Network integrating Ticket Sales and Passenger Count Data	G., Galliani, P., Secchi, **F., Ieva**	*Transportation Research Part A. 190: 104246*
Longitudinal Latent Overall Toxicity (LOTox) profiles in osteosarcoma: a new taxonomy based on latent Markov models	M. Spreafico, **F., Ieva,** M., Fiocco	*Statistical Methods and Applications, 33: 1451–1482*
A Spearman dependence matrix for Multivariate Functional Data	**F., Ieva,** M., Ronzulli, J, Romo, A.M., Paganoni	*Journal of Nonparametric Statistics*
Inferential tools for assessing dependence across response categories in multinomial models with discrete random effects	C Masci, **F Ieva**, AM Paganoni	*Journal of Classification*
How much of the past matters? Using dynamic survival models for the monitoring of potassium in heart failure patients using electronic health records	C Gregorio, G Barbati, A Scagnetto, A Di Lenarda, **F Ieva**	*arxiv*
COVID-19 diagnosis, vaccination during pregnancy, and adverse pregnancy outcomes of 865,654 women in England and Wales: a population-based cohort study	E. Raffetti, T. Bolton, J. Nolan, **L. Zuccolo**, et al.	*The Lancet Regional Health - Europe*
Trends in fetal alcohol spectrum disorder research: A bibliometric review of original articles published between 2000 and 2023	C. McQuire, N. F. Frennesson, J. Parsonage, M. Van der Heiden, D. Troy, **L. Zuccolo**	*Alchohol Clinical & Experimental Research*
Analyzing Questions About Alcohol in Pregnancy Using Web-Based Forum Topics: Qualitative Content Analysis	N. F. Frennesson, J. Barnett, Y. Merouani, A. Attwood, **L. Zuccolo**, C.McQuire	*JMIR Infodemiology*
COVID-19 vaccination and birth outcomes of 186,990 women vaccinated before pregnancy: an England-wide cohort study	A. K. Suseeladevi, R. Denholm, M. Retford, E. Raffetti, C. Burden, K. Birchenall, V. Male, V. Walker, C. Tomlinson, A. M. Wood, and **L. Zuccolo**, on behalf of the CVD-COVID-UK/COVID-IMPACT Consortium	*The Lancet Regional Health: Europe*

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The genetic landscape of neuro-related proteins in human plasma	**L. Repetto**, J. Chen, Z. Yang, R. Zhai, …, **S. Sharapov**, et al.	*Nature Human Behaviour*
Socio-demographic and genetic risk factors for drug adherence and persistence across 5 common medication classes	M. Cordioli, **A. Corbetta**, H. M. Kariis, S. Jukarainen, P. Vartiainen, et al.	*Nature Communications*
Association between plausible genetic factors and weight loss from GLP1-RA and bariatric surgery: a multi-ancestry study in 10 960 individuals from 9 biobanks	J German, M Cordioli, V Tozzo, S Urbut, K Arumäe, R A.J. Smit, J Lee, J H. Li, A Janucik, ..., **A Corbetta**, …, H Mbarek, R.J.F. Loos, U. Vainik, A. Ganna	*medRxiv*
Decoding the epigenetics and chromatin loop dynamics of androgen receptor-mediated transcription	U. Berkay Altıntaş, J. Seo, **C. Giambartolomei**, Do. Ozturan, B. J. Fortunato, G. M. Nelson, et al.	*Nature Communications*
Enabling data linkages for rare diseases in a resilient environment with the SERDIF framework	**A. Navarro-Gallinad**, F. Orlandi, J. Scott, E. Havyarimana, N. Basu, M. A. Little, D. O'Sullivan	*NPJ Digital Medicine*
Time Trends in Liver-Related Mortality in People With and Without Diabetes: Results From a Population-Based Study	S. Ciardullo, G. Morabito, F. Rea, **L. Savaré**, G. Perseghin, G. Corrao	*The journal of Clinical Endocrinology & Metabolism*
Adherence to GLP1-RA and SGLT2-I affects clinical outcomes and costs in patients with type 2 diabetes	S. Ciardullo, **L. Savaré**, F. Rea, G. Perseghin, G. Corrao	*Diabetes Metabolism Reseaech and Review*
Machine learning and lean six sigma for targeted patient-specific quality assurance of volumetric modulated arc therapy plans	N. Lambri, D. Dei, G. Goretti, **L. Crespi**, et al.	*Physics and Imaging in Radiation Oncology*
Deep learning-based optimization of field geometry for total marrow irradiation delivered with volumetric modulated arc therapy	N. Lambri, G. Longari, D. Loiacono, R. Coimbra Brioso, **L. Crespi**, et al.	*Medical Physics*
Deep learning and atlas-based models to streamline the segmentation workflow of total marrow and lymphoid irradiation	D. Dei, N. Lambri, **L. Crespi**, R. Coimbra Brioso, et al.	*La Radiologia Medica*
An innovative artificial intelligence-based method to compress complex models into explainable, model-agnostic and reduced decision support systems with application to healthcare (NEAR)	K. Kassem, M. Sperti, A. Cavallo, **A. M. Vergani**, D. Fassino, et al.	*Artificial Intelligence in Medicine*
Fast and reliable ancestral reconstruction on ancient genotype data with non-negative Least square and Principal Component Analysis	L. de Gennaro, L. Molinaro, **A. Raveane**, **F. Santonastaso**, S.S. Saponetti, **M. C.Massi**, ... & F Montinaro	*bioRxiv*

* These publications include: reviews and peer-reviewed research articles.

NATIONAL FACILITIES

TITLE	AUTHORS	JOURNAL
A multiparametric screen uncovers FDA-approved small molecules that potentiate the nuclear mechano-dysfunctions in ATR-defective cells	M. R. Cera, G. Bastianello, D. Purushothaman, A. Andronache, F. Ascione, M. Robusto, **G. Fagà**, M. Pasi, G. Meroni, Q. Li, R. Choudhary, M. Varasi, M. Foiani, C. Mercurio	*Scientific Reports*
Optimized and Scalable Precoating-Free Reprogramming of Human Peripheral Blood Mononuclear Cells into iPSCs	**E. Fiacco**, **S. Landi**, **J. Zasso**, **C. Ambrosini**, **G. Fagà**	*Current Protocols*
Human iPSC-derived neural stem cells displaying radial glia signature exhibit long-term safety in mice	M. Luciani, C. Garsia, S. Beretta, I. Cifola, **C. Peano**, I. Merelli, L. Petiti, A. Miccio, V. Meneghini, A. Gritti	*Nature Communications*
Definition of a Multi-Omics Signature for Esophageal Adenocarcinoma Prognosis Prediction	L. Lambroia, **C. M. Conca Dioguardi**, S. Puccio, A. Pansa, G. Alvisi, G. Basso, **J. Cibella**, F. S. Colombo, S. Marano, S. Basato, R. Alfieri, S. Giudici, C. Castoro, **C. Peano**	*Cancers*
(Re)-definition of the holo- and apo-Fur direct regulons of Helicobacter pylori	**A. Vannini**, E. Pinatel, P. E. Costantini, S. Pelliciari, D. Roncarati, S. Puccio, G. De Bellis, V. Scarlato, **C. Peano**, A. Danielli	*Journal of Molecular Biology*
Microbial composition associated with biliary stents in patients undergoing pancreatic resection for cancer	A. Blanco-Míguez, S. Carloni, C. Cardenas, **C. Conca Dioguardi**, …, **C. Peano**, S. Tamburini, R. Rusconi, N. Segata	*NPJBiofilms and Microbiomes*
Recurrent somatic mutations of FAT family cadherins induce an aggressive phenotype and poor prognosis in anaplastic large cell lymphoma	M. Villa, G. G. Sharma, F. Malighetti, M. Mauri, G. Arosio, …, **S. Bombelli**, et al.	*British Journal of Cancer*
Multiple cell types including melanocytes contribute to elastogenesis in the developing murine aortic valve	S. Nasim, B. Abdo Abujamra, D. Chaparro, P. Da Silva Nogueira, **A. Riva**, J. D Hutcheson, L. Kos	*Scientific Reports*
Quinoin, type 1 ribosome inactivating protein alters SARS-CoV-2 viral replication organelle restricting viral replication and spread	S. M. L. Tiano, N. Landi, V. Marano, S. Ragucci, G. Bianco, D. Cacchiarelli, **P. Swuec**, **M. Silva**, R. De Cegli, F. Sacco, A. Di Maro, M. Cortese	*International Journal of Biological Macromolecules*
Structure-based mechanism of riboregulation of the metabolic enzyme SHMT1	S. Spizzichino, F. Di Fonzo, C. Marabelli, A. Tramonti, A. Chaves-Sanjuan, A. Parroni, G. Boumis, F. R. Liberati, A. Paone, L. C. Montemiglio, M. Ardini, A. J. Jakobi, A. Bharadwaj, **P. Swuec**, et al.	*Molecular Cell*
IHMCIF: An Extension of the PDBx/mmCIF Data Standard for Integrative Structure Determination Methods	B. Vallat, B. M. Webb, J. D. Westbrook, T. D. Goddard, C. A. Hanke, **A. Graziadei**, et al.	*Journal of Molecula Biology*
Typical NF2 and LTZR1 mutations are retained in an immortalized human schwann cell model of schwannomatosis	V. Melfi, T. Mohamed, A. Colciago, **A. Fasciani**, R. De Francesco, et al.	*Helyion*
Castanet: a pipeline for rapid analysis of targeted multi-pathogen genomic data	R. Mayne, S. Secret, C. Geoghegan, A. Trebes, K. Kean, K. Reid, G. Lin, M. A. Ansari, **M. de Cesare**, et al.	*Bioinformatics*

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Targeted metagenomics reveals association between severity and pathogen co-detection in infants with respiratory syncytial virus	G. Lin, S. B. Drysdale, M. D. Snape, D. O'Connor, A. Brown, G. MacIntyre-Cockett, E. Mellado-Gomez, **M. de Cesare**, et al.	*Nature Communications*
Hydrogel-chitosan and polylactic acid-polycaprolactone bioengineered scaffolds for reconstruction of mandibular defects: a preclinical in vivo study with assessment of translationally relevant aspects	M. Ferrari, S. Taboni, H. H. L. Chan, J. Townson, ..., **M. Ventura**, et al.	*Frontiers in Bioengineering and Biotechnology*
Detection of metabolic adaptation in a triple-negative breast cancer animal model with [18F]choline-PET imaging as a surrogate for drug resistance	A. A. Kohan, M. Lupien, D. Cescon, G. Deblois, **M. Ventura**, U. Metser, P. Veit-Haibach	*EJNMMI*
Unveiling the mechanistic link between extracellular amyloid fibrils, mechano-signaling and YAP activation in cancer	F. Farris, A. Elhagh, I. Vigorito, N. Alongi, F. Pisati, M. Giannattasio, **F. Casagrande**, L. Veghini, V. Corbo, C. Tripodo, A. Di Napoli, V. Matafora, A. Bachi	*Cell Death & Disease*

In 2024, there were also **76 cohort studies** (research projects in which groups of people are studied over a specific period of time) and **50 new experimental methods and protocols** developed with the participation of HT-affiliated researchers, details of which are given below.

COHORT STUDIES

TITLE	AUTHORS	JOURNAL
HSP and CD279 gene expression as candidate biomarkers in symptomatic LGLL patients	G. Talarico, A. Franceschin, **A. Raveane**, P. Falvo, S. Mazzara, F. Melle, G. Motta, S. Orecchioni, A. Tenore, G. Gregato, C. Poletti, R. Chiarle, S. Pileri, P.Mancuso, F. Bertolini	*Discover Oncology*
Clinical and genetic characterization of a progressive RBL2-associated neurodevelopmental disorder	G. N. Aughey, E. Cali, R. Maroofian, M. S. Zaki, A. T. Pagnamenta, …, **E. Giacopuzzi**, et al.	*Brain*
Bi-allelic genetic variants in the translational GTPases GTPBP1 and GTPBP2 cause a distinct identical neurodevelopmental syndrome	V. Salpietro, R. Maroofian, M. S. Zaki, J. Wangen, A. Ciolfi, …, **E. Giacopuzzi**, …, **A. T. Pagnamenta**, et al.	*AJHG*
High-coverage nanopore sequencing of samples from the 1000 Genomes Project to build a comprehensive catalog of human genetic variation	J. A. Gustafson, S. B. Gibson, N. Damaraju, M. P.G. Zalusky, K. Hoekzema, ..., **A. Guarracino**, et al.	*Genome Research*
Definition of a Multi-Omics Signature for Esophageal Adenocarcinoma Prognosis Prediction	L. Lambroia, **C. M. Conca Dioguardi**, S. Puccio, A. Pansa, G. Alvisi, G. Basso, **J. Cibella**, F. S. Colombo, S. Marano, S. Basato, R. Alfieri, S. Giudici, C. Castoro, **C. Peano**	*Cancers*
Single-cell multi-cohort dissection of the schizophrenia transcriptome	W. B. Ruzicka, S. Mohammadi, J. F Fullard, **J. Davila-Velderrain**, …, **P. Roussos**, M. Kellis; PsychENCODE Consortium	*Science*

TITLE	AUTHORS	JOURNAL
Inherited polygenic effects on common hematological traits influence clonal selection on JAK2V617F and the development of myeloproliferative neoplasms	J. Guo, K. Walter, P. M. Quiros, M. Gu, E. J. Baxter, J. Danesh, **E. Di Angelantonio**, …, **N. Soranzo**	*Nature Genetics*
Misexpression of inactive genes in whole blood is associated with nearby rare structural variants	T. Vanderstichele, K. L. Burnham, N. de Klein, **M. Tardaguila**, …, **E. Di Angelantonio**, …, **N. Soranzo**, L. Parts, M. Inouye, D. S. Paul, E. E. Davenport	*AJHG*
X-chromosome and kidney function: evidence from a multi-trait genetic analysis of 908,697 individuals reveals sex-specific and sex-differential findings in genes regulated by androgen response elements	M. Scholz, K. Horn, J. Pott, M. Wuttke, …, **N. Pirastu**, et al.	*Nature Communications*
HSP and CD279 gene expression as candidate biomarkers in symptomatic LGLL patients	G. Talarico, A. Franceschin, **A. Raveane**, P. Falvo, S. Mazzara, F. Melle, G. Motta, S. Orecchioni, A. Tenore, G. Gregato, C. Poletti, R. Chiarle, S. Pileri, P.Mancuso, F. Bertolini	*Discover Oncology*
Clinical and genetic characterization of a progressive RBL2-associated neurodevelopmental disorder	G. N. Aughey, E. Cali, R. Maroofian, M. S. Zaki, A. T. Pagnamenta, …, **E. Giacopuzzi**, et al.	*Brain*
Bi-allelic genetic variants in the translational GTPases GTPBP1 and GTPBP2 cause a distinct identical neurodevelopmental syndrome	V. Salpietro, R. Maroofian, M. S. Zaki, J. Wangen, A. Ciolfi, …, **E. Giacopuzzi**, …, **A. T. Pagnamenta**, et al.	*AJHG*
High-coverage nanopore sequencing of samples from the 1000 Genomes Project to build a comprehensive catalog of human genetic variation	J. A. Gustafson, S. B. Gibson, N. Damaraju, M. P.G. Zalusky, K. Hoekzema, ..., **A. Guarracino**, et al.	*Genome Research*
SARS-CoV-2 infection causes dopaminergic neuron senescence	L. Yang, T. W. Kim, Y. Han, M. S. Nair, **O. Harschnitz**, J. Zhu, et al.	*Cell Stem Cell*
Single-cell multiregion dissection of Alzheimer's disease	H. Mathys, C. A. Boix, L. A. Akay, Z. Xia, **J. Davila-Velderrain**, et al.	*Nature*
Single-cell multi-cohort dissection of the schizophrenia transcriptome	W. B. Ruzicka, S. Mohammadi, J. F Fullard, **J. Davila-Velderrain**, …, **P. Roussos**, M. Kellis; PsychENCODE Consortium	*Science*
Stratified Medicine Paediatrics: Cell free DNA and serial tumour sequencing identifies subtype specific cancer evolution and epigenetic states	S. L. George, C. Lynn, R. Stankunaite, D. Hughes, C. M. Sauer, J. Chalker, …, **A. Sottoriva**, L. Chesler	*Cancer Discovery*
Circulating tumor DNA dynamics and clinical outcome in metastatic colorectal cancer patients undergoing front-line chemotherapy	M. Ghidini, J. C. Hahne, C. Senti, T. Heide, P. Z. Proszek, …, **A. Sottoriva**, R. Passalacqua, N. Valeri	*Clinical Cancer Research*
Homopolymer switches mediate adaptive mutability in mismatch repair-deficient colorectal cancer	H. Kayhanian, W. Cross, S. E. M. van der Horst, P. Barmpoutis, **A. Sottoriva**, T. A. Graham, M. Rodriguez-Justo, K. Shiu, H. J. G. Snippert, M. Jansen	*Nature Genetics*
Tumor evolution metrics predict recurrence beyond 10 years in locally advanced prostate cancer	J. Fernandez-Mateos, G. D. Cresswell, N. Trahearn, …, **T. Heide**, …, **A. Sottoriva**	*Nature Cancer*

TITLE	AUTHORS	JOURNAL
The genomic landscape of 2,023 colorectal cancers	A. J. Cornish, A. J. Gruber, B. Kinnersley, …, **A. Sottoriva**, T. A. Graham, D. C. Wedge, R. S. Houlston	*Nature*
Immune evasion impacts the landscape of driver genes during cancer evolution	L. Gourmet, **A. Sottoriva**, S. Walker-Samuel, M. Secrier, L. Zapata	*Genome Biology*
Long-term Multimodal Recording Reveals Epigenetic Adaptation Routes in Dormant Breast Cancer Cells	D. Rosano, E. Sofyali, H. Dhiman, C. Ghirardi, D. Ivanoiu, **T. Heide**, ..., **C. James**, ..., **A. Sottoriva**, L. Magnani	*Cancer Discovery*
Epigenome and early selection determine the tumour-immune evolutionary trajectory of colorectal cancer	E. Lakatos, V. Gunasri, L. Zapata, J. Househam, **T. Heide**, …, **A. Sottoriva**, T. A. Graham	*bioRxiv*
Long deletion signatures in repetitive genomic regions track somatic evolution and enable sensitive detection of microsatellite instability	Q. Guo, J. Househam, E.Lakatos, S. Nowinski, I. Al Bakir, …, **A. Sottoriva**, et al.	*bioRxiv*
Heterogeneity and evolution of DNA mutation rates in microsatellite stable colorectal cancer	E. Grassi, V. Vurchio, G. D. Cresswell, I. Catalano, …, **A. Sottoriva**, et al.	*bioRxiv*
Integrative ensemble modelling of cetuximab sensitivity in colorectal cancer patient-derived xenografts	**U. Perron**, E. Grassi, A. Chatzipli, M. Viviani, E. Karakoc, **L. Trastulla**, **L. M. Brochier**, ..., **F. Iorio**	*Nature Communications*
Distinct genetic liability profiles define clinically relevant patient strata across common diseases	**L. Trastulla**, G. Dolgalev, S. Moser, L. T. Jiménez-Barrón, …, **F. Iorio**, B. Müller-Myhsok, H. Schunkert, M. J. Ziller	*Nature Communications*
A comprehensive clinically informed map of dependencies in cancer cells and framework for target prioritization	C. Pacini, E. Duncan, E. Gonçalves, J. Gilbert, S. Bhosle, …, **F. Iorio**, M. J. Garnett	*Cancer Cell*
Clinical application of tumour-in-normal contamination assessment from whole genome sequencing	J. Mitchell, **S. Milite**, J. Bartram, S. Walker, et al.	*Nature Communications*
Risks of major arterial and venous thrombotic diseases after hospitalisation for influenza, pneumonia, and COVID-19: A population-wide cohort in 2.6 million people in Wales	S. Keene, H. Abbasizanjani, F. Torabi, R. Knight, V. Walker, E. Raffetti, G. Cezard, S. Ip 7, A. Sampri, T. Bolton, R. Denholm, K. Khunti, A. Akbari, J. Quint, S. Denaxas, C. Sudlow, **E. Di Angelantonio**, J. A. C. Sterne, A. Wood, W. N. Whiteley; CVD-COVID-UK/COVID-IMPACT Consortium and the Longitudinal Health and Wellbeing COVID-19 National Core Study	*Thrombosis Research*
Leucocyte telomere length and conduction system ageing	S. van Duijvenboden, C. P. Nelson, Z. Raisi-Estabragh, J. Ramirez, M. Orini, Q. Wang, N. Aung, V. Codd, S. Stoma, E. Allara, A. M. Wood, **E. Di Angelantonio**, J. Danesh, N. C. Harvey, S. E. Petersen, P. B. Munroe, N. J. Samani	*Heart*
Assessing the kinetics of oxygen-unloading from red cells using FlowScore, a flow-cytometric proxy of the functional quality of blood	J. Rabcuka, P. A. Smethurst, K. Dammert, J. Saker, G. Aran, G. M. Walsh 5, **E. Di Angelantonio**, D. J. Roberts, S. Blonski, P. M. Korczyk, A. Shirakami, R. Cardigan, P. Swietach	*eBioMedicine*
Novel loci and biomedical consequences of iron homoeostasis variation	E. Allara, S. Bell, R. Smith, S. J. Keene, …, **N. Pirastu**, …, **E. Di Angelantonio**	*Communications Biology*

TITLE	AUTHORS	JOURNAL
Polygenic Prediction of Recurrent Events After Early-Onset Myocardial Infarction	M. Ardissino, E. M. Paraboschi, S. A. Lambert, L. G. Kim, …, **E. Di Angelantonio**, R. Asselta, D. Ardissino, A. S. Butterworth	*Circulation: Genomics and Precision Medicine*
Contemporary epidemiology of hospitalised heart failure with reduced versus preserved ejection fraction in England: a retrospective, cohort study of whole-population electronic health records	R. A. Fletcher, P. Rockenschaub, B. L. Neuen, I. J. Walter, N. Conrad, ..., **E. Di Angelantonio**, et al.	*The Lancet Public Health*
The power of arts-based film interventions to encourage Black blood donors	R. Mills, A. Okubanjo, N. Acheampong, M. Croucher, N. Eaton, A. Kazi, **E. Di Angelantonio**, A. Wood, B. Masser, E. Ferguson	*Transfusion*
Association of circulating fatty acids with cardiovascular disease risk: Analysis of individual-level data in three large prospective cohorts and updated meta-analysis	F. Shi, R. Chowdhury, E. Sofianopoulou, A. Koulman, …, **E. Di Angelantonio**, et al.	*European Journal of Preventive Cardiology*
Misexpression of inactive genes in whole blood is associated with nearby rare structural variants	T. Vanderstichele, K. L. Burnham, N. de Klein, **M. Tardaguila**, …, **E. Di Angelantonio**, …, **N. Soranzo**, L. Parts, M. Inouye, D. S. Paul, E. E. Davenport	*AJHG*
Genome-wide meta-analyses of restless legs syndrome yield insights into genetic architecture, disease biology and risk prediction	B. Schormair, C. Zhao, S. Bell, M. Didriksen, …, **E. Di Angelantonio**, K. Oexle, J. Winkelmann	*Nature Genetics*
Patent Foramen Ovale Closure in Older Patients With Stroke: Patient Selection for Trial Feasibility	A. Y. Wang, P. M. Rothwell, J. Nelson, J. L. Saver, S. E. Kasner, …, **E. Di Angelantonio**, et al.	*Neurology*
Genetically predicted plasma cortisol and common chronic diseases: A Mendelian randomization study	W. Lee, S. C. Larsson, A. Wood, **E. Di Angelantonio**, A. S. Butterworth, S. Burgess, E. Allara	*Clinical Endocrinology*
The value of genetic data from 665,460 individuals in managing iron deficiency anaemia and suitability to donate blood	J. Toivonen, E. Allara; FinnGen; J. Castrén, **E. Di Angelantonio**, M. Arvas	*Vox Sanguinis*
Estimating dose-response relationships for vitamin D with coronary heart disease, stroke, and all-cause mortality: observational and Mendelian randomisation analyses	E Sofianopoulou, S K Kaptoge, S Afzal, T Jiang, D Gill, TE Gundersen, ..., **E. Di Angelantonio**, J Danesh, AS Butterworth, S Burgess	*The Lancet Diabetes & Endocrinology*
Association of circulating fatty acids with cardiovascular disease risk: Analysis of individual-level data in three large prospective cohorts and updated meta-analysis	F Shi, R Chowdhury, E Sofianopoulou, A Koulman, L Sun, M Steur, K Aleksandrova, CC Dahm, MB Schulze, YT van der Schouw, C Agnoli, P Amiano, ..., **E. Di Angelantonio**, NG Forouhi, J Danesh, AS Butterworth, S Kaptoge	*European Journal of Preventive Cardiology*
Cardiovascular safety of assisted reproductive technology: a meta-analysis	C. A. Pivato., A. Inversetti, G. Condorelli, A. Chieffo, P. E. Levi-Setti, A. C. Latini, A. Busnelli, M. Messa, M. Cristodoro, R. M. Bragato, M. Francone, **L. Zuccolo**, **F. Ieva**, **E. Di Angelantonio**, G. Stefanini, N. Di Simone	*European Heart Journal*

TITLE	AUTHORS	JOURNAL
Integrated clinical risk prediction of type 2 diabetes with a multifactorial polygenic risk score	S. C. Ritchie, H. J. Taylor, Y. Liang, H. D. Manikpurage, …, **E. Di Angelantonio**, M. Inouye	*medRxiv*
Age and sex specific thresholds for risk stratification of cardiovascular disease and clinical decision making: prospective open cohort study	Z. Xu, J. Usher-Smith, L. Pennells, R. Chung, M. Arnold, L. Kim, S. Kaptoge, M. Sperrin, **E. Di Angelantonio**, A. M. Wood	*BMJ Medicine*
CT-based radiogenomics of intrahepatic cholangiocarcinoma	L. Viganò, V. Zanuso, F. Fiz, L. Cerri, M. E. Laino, A. Ammirabile, E. M. Ragaini, S. Viganò, L. M. Terracciano, M. Francone, **F. Ieva**, L. Di Tommaso, L. Rimassa	*Digestive and Liver Disease*
Causal effect of chemotherapy received dose intensity on survival outcome: a retrospective study in osteosarcoma	M. Spreafico, **F. Ieva**, M. Fiocco	*BMC Medical Research Methodology*
Radiomics of Intrahepatic Cholangiocarcinoma and Peritumoral Tissue Predicts Postoperative Survival: Development of a CT-Based Clinical-Radiomic Model	F. Fiz, N. Rossi, S. Langella, S. Conci, M. Serenari, …, **F. Ieva**, L. Viganò	*Annals of Surgical Oncology*
Cost-effectiveness of single-pill and separate-pill administration of antihypertensive triple combination therapy: a population-based microsimulation study	G. Morabito, C. Gregorio, **F. Ieva**, G. Barbati, G. Mancia, G. Corrao, F. Rea	*BMC Public Health*
Flexible Approaches Based on Multistate Models and Microsimulation to Perform Real-World Cost-Effectiveness Analyses: An Application to Proprotein Convertase Subtilisin-Kexin Type 9 Inhibitors	C. Gregorio, F. Rea, **F. Ieva**, A. Scagnetto, C. Indennidate, C. Cappelletto, A. Di Lenarda, G. Barbati	*Value in Health*
Personalized Timing for Allogeneic Stem-Cell Transplantation in Hematologic Neoplasms: A Target Trial Emulation Approach Using Multistate Modeling and Microsimulation	C. Gregorio, M. Spreafico, S. D'Amico, E. Sauta, …, **F. Ieva**	*JCO Clinical Cancer Informatics*
How much of the past matters? Using dynamic survival models for the monitoring of potassium in heart failure patients using electronic health records	C Gregorio, G Barbati, A Scagnetto, A Di Lenarda, **F Ieva**	*arxiv*
Clinical and Genomic-Based Decision Support System to Define the Optimal Timing of Allogeneic Hematopoietic Stem-Cell Transplantation in Patients With Myelodysplastic Syndromes	C. A. Tentori, C. Gregorio, M. Robin, N. Gagelmann, C. Gurnari, …, **F. Ieva**, M. G. Della Porta; GenoMed4all and Synthema Consortiums	*Journal of Clinical Oncology*
Patients' Radiation Exposure During Endovascular Abdominal Aortic Aneurysm Repair	T. J. Mandigers, I. Fulgheri, G. Pugliese, D. Bissacco, **L. Savarè**, **F. Ieva**, M. Campoleoni, J. A. van Herwaarden, S. Trimarchi, M. Domanin	*Annals of Vascular Surgery*

TITLE	AUTHORS	JOURNAL
Longitudinal Latent Overall Toxicity (LOTox) profiles in osteosarcoma: a new taxonomy based on latent Markov models	M. Spreafico, **F., Ieva,** M., Fiocco	*Statistical Methods and Applications, 33: 1451–1482*
COVID-19 diagnosis, vaccination during pregnancy, and adverse pregnancy outcomes of 865,654 women in England and Wales: a population-based cohort study	E. Raffetti, T. Bolton, J. Nolan, **L. Zuccolo**, et al.	*The Lancet Regional Health - Europe*
COVID-19 vaccination and birth outcomes of 186,990 women vaccinated before pregnancy: an England-wide cohort study	A. K. Suseeladevi, R. Denholm, M. Retford, E. Raffetti, C. Burden, K. Birchenall, V. Male, V. Walker, C. Tomlinson, A. M. Wood, and **L. Zuccolo**, on behalf of the CVD-COVID-UK/COVID-IMPACT Consortium	*The Lancet Regional Health: Europe*
The genetic landscape of neuro-related proteins in human plasma	**L. Repetto**, J. Chen, Z. Yang, R. Zhai, …, **S. Sharapov**, et al.	*Nature Human Behaviour*
Socio-demographic and genetic risk factors for drug adherence and persistence across 5 common medication classes	M. Cordioli, **A. Corbetta**, H. M. Kariis, S. Jukarainen, P. Vartiainen, et al.	*Nature Communications*
Association between plausible genetic factors and weight loss from GLP1-RA and bariatric surgery: a multi-ancestry study in 10 960 individuals from 9 biobanks	J German, M Cordioli, V Tozzo, S Urbut, K Arumäe, R A.J. Smit, J Lee, J H. Li, A Janucik, ..., **A Corbetta**, …, H Mbarek, R.J.F. Loos, U. Vainik, A. Ganna	*medRxiv*
Enabling data linkages for rare diseases in a resilient environment with the SERDIF framework	**A. Navarro-Gallinad**, F. Orlandi, J. Scott, E. Havyarimana, N. Basu, M. A. Little, D. O'Sullivan	*NPJ Digital Medicine*
Time Trends in Liver-Related Mortality in People With and Without Diabetes: Results From a Population-Based Study	S. Ciardullo, G. Morabito, F. Rea, **L. Savaré**, G. Perseghin, G. Corrao	*The journal of Clinical Endocrinology & Metabolism*
Adherence to GLP1-RA and SGLT2-I affects clinical outcomes and costs in patients with type 2 diabetes	S. Ciardullo, **L. Savaré**, F. Rea, G. Perseghin, G. Corrao	*Diabetes Metabolism Reseaech and Review*
Deep learning-based optimization of field geometry for total marrow irradiation delivered with volumetric modulated arc therapy	N. Lambri, G. Longari, D. Loiacono, R. Coimbra Brioso, **L. Crespi**, et al.	*Medical Physics*
Recurrent somatic mutations of FAT family cadherins induce an aggressive phenotype and poor prognosis in anaplastic large cell lymphoma	M. Villa, G. G. Sharma, F. Malighetti, M. Mauri, G. Arosio, …, **S. Bombelli**, et al.	*British Journal of Cancer*
Targeted metagenomics reveals association between severity and pathogen co-detection in infants with respiratory syncytial virus	G. Lin, S. B. Drysdale, M. D. Snape, D. O'Connor, A. Brown, G. MacIntyre-Cockett, E. Mellado-Gomez, **M. de Cesare**, et al.	*Nature Communications*

TITLE	AUTHORS	JOURNAL
Recurrent somatic mutations of FAT family cadherins induce an aggressive phenotype and poor prognosis in anaplastic large cell lymphoma	M. Villa, G. G. Sharma, F. Malighetti, M. Mauri, G. Arosio, …, **S. Bombelli**, et al.	*British Journal of Cancer*
Enabling data linkages for rare diseases in a resilient environment with the SERDIF framework	**A. Navarro-Gallinad**, F. Orlandi, J. Scott, E. Havyarimana, N. Basu, M. A. Little, D. O'Sullivan	*NPJ Digital Medicine*
Time Trends in Liver-Related Mortality in People With and Without Diabetes: Results From a Population-Based Study	S. Ciardullo, G. Morabito, F. Rea, **L. Savaré**, G. Perseghin, G. Corrao	*The journal of Clinical Endocrinology & Metabolism*
Tumor microenvironment-induced FOXM1 regulates ovarian cancer stemness	C. Battistini, H. A. Kenny, M. Zambuto, V. Nieddu, V. Melocchi, A. Decio, P. Lo Riso, **C. E. Villa**, et al.	*Cell Death & Disease*
Targeted metagenomics reveals association between severity and pathogen co-detection in infants with respiratory syncytial virus	G. Lin, S. B. Drysdale, M. D. Snape, D. O'Connor, A. Brown, G. MacIntyre-Cockett, E. Mellado-Gomez, **M. de Cesare**, et al.	*Nature Communications*
Clinical application of tumour-in-normal contamination assessment from whole genome sequencing	J. Mitchell, **S. Milite**, J. Bartram, S. Walker, et al.	*Nature Communications*
Association between plausible genetic factors and weight loss from GLP1-RA and bariatric surgery: a multi-ancestry study in 10 960 individuals from 9 biobanks	J German, M Cordioli, V Tozzo, S Urbut, K Arumäe, R A.J. Smit, J Lee, J H. Li, A Janucik, ..., **A Corbetta**, …, H Mbarek, R.J.F. Loos, U. Vainik, A. Ganna	*medrxiv*

NEW EXPERIMENTAL METHODS AND PROTOCOLS

TITLE	AUTHORS	JOURNAL
Deconwolf enables high-performance deconvolution of widefield fluorescence microscopy images	E. Wernersson, E. Gelali, G. Girelli, S. Wang, ..., **N. Crosetto**, **M. Bienko**	*Nature Methods*
scCircle-seq unveils the diversity and complexity of extrachromosomal circular DNAs in single cells	J. P. Chen, C. Diekmann, H. Wu, C. Chen, **G. Della Chiara**, …, **M. Virdi**, …, **M. Bienko**, **N. Crosetto**	*Nature Communications*
RADIP technology comprehensively identifies H3K27me3-associated RNA-chromatin interactions	X. Shu, M. Kato, S. Takizawa, Y. Suzuki, **P. Carninci**	*Nucleic Acid Research*
CapTrap-seq: a platform-agnostic and quantitative approach for high-fidelity full-length RNA sequencing	S. Carbonell-Sala, T. Perteghella, J. Lagarde, H. Nishiyori, E. Palumbo, C. Arnan, H. Takahashi, **P. Carninci**, B. Uszczynska-Ratajczak, R. Guigó	*Nature Communications*
CFC-seq: identification of full-length capped RNAs unveil enhancer-derived transcription	C. W. Yip, C. Parr, H. Takahashi, K. Yasuzawa, M. Valentine, … **R. Albanese**, **F. Dossena**, ...**L. Calviello, M. Bienko, I. Legnini**, …, **P. Carninci**	*bioRxiv*

TITLE	AUTHORS	JOURNAL
Self-supervised learning for characterising histomorphological diversity and spatial RNA expression prediction across 23 human tissue types	**F. Cisternino**, **S. Ometto**, **S. Chatterjee**, **E. Giacopuzzi**, A. P. Levine, **C. A. Glastonbury**	*Nature Communications*
Building pangenome graphs	E. Garrison, **A. Guarracino**, S. Heumos, F. Villani, Z. Bao, L. Tattini, …, **N. Soranzo**, V. Colonna, R. W. Williams, P. Prins	*Nature Methods*
Novel Endogenous Engineering Platform for Robust Loading and Delivery of Functional mRNA by Extracellular Vesicles	A. M. Zickler, X. Liang, D. Gupta, D. R. Mamand, **M. De Luca**, et al.	*Advanced Science*
VesselBoost: A Python Toolbox for Small Blood Vessel Segmentation in Human Magnetic Resonance Angiography Data	M. Xu, F. L. Ribeiro, M. Barth, M. Bernier, S. Bollmann, **S. Chatterjee**, et al.	*bioRxiv*
Cluster-efficient pangenome graph construction with nf-core/pangenome	S. Heumos, M.L. Heuer, F. Hanssen, L. Heumos, **A. Guarracino**, P. Heringer, P. Ehmele, P. Prins, E. Garrison, S. Nahnsen	*Bioinformatics*
Pangenome graph layout by Path-Guided Stochastic Gradient Descent	S. Heumos, **A. Guarracino**, J. M. Schmelzle, J. Li, Z. Zhang, J. Hagmann, S. Nahnsen, P. Prins, E. Garrison	*Bioinformatics*
Single-cell multiregion dissection of Alzheimer's disease	H. Mathys, C. A. Boix, L. A. Akay, Z. Xia, **J. Davila-Velderrain**, et al.	*Nature*
A polarized FGF8 source specifies frontotemporal signatures in spatially oriented cell populations of cortical assembloids	C. Bosone, **D. Castaldi**, T. R. Burkard, S. J. Guzman, T. Wyatt, **C. Cheroni**, N. Caporale, S. Bajaj, J. A. Bagley, C. Li, B. Sorre, **C. E. Villa**, **G. Testa**, V. Krenn, J. A. Knoblich	*Nature Methods*
Engineering Toxoplasma gondii secretion systems for intracellular delivery of multiple large therapeutic proteins to neurons	S. Bracha, H. J. Johnson, N. A. Pranckevicius, F. Catto, ..., **M. T. Rigoli**, **C. Cheroni**, **M. Bonfanti**, **A. Valenti**, **S. Stucchi**, ..., **N. Caporale**, **G. Testa**, A. Aguzzi, A. A. Koshy, L. Sheiner, Oded Rechavi	*Nature Microbiology*
TOMOMAN: a software package for large-scale cryo-electron tomography data preprocessing, community data sharing and collaborative computing	S. Khavnekar, **P. S. Erdmann**, W. Wan	*Journal of Applied Cristallography*
Serialized on-grid lift-in sectioning for tomography (SOLIST) enables a biopsy at the nanoscale	**H. T. D. Nguyen**, **G. Perone**, **N. Klena**, **R. Vazzana**, **F. K. Don**, **M. Silva**, **S. Sorrentino**, **P. Swuec**, F. Leroux, **N. Kalebic**, **F. Coscia**, **P. S. Erdmann**	*Nature Methods*
Protocol for precision editing of endogenous Chlamydomonas reinhardtii genes with CRISPR-Cas	**A. P. Nievergelt**, D. R. Diener, A. Bogdanova, T. Brown, **G. Pigino**	*STAR Protocol*
IHMCIF: An Extension of the PDBx/mmCIF Data Standard for Integrative Structure Determination Methods	B. Vallat, B. M. Webb, J. D. Westbrook, T. D. Goddard, C. A. Hanke, **A. Graziadei**, et al.	*Journal of Molecula Biology*
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Kinbiont: From time series to ecological and evolutionary responses in microbial systems	**F. Angaroni, A. Peruzzi,** E. Z. Alvarenga**,** and **F. Pinheiro**	*bioRxiv*
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A Spearman dependence matrix for Multivariate Functional Data	**F., Ieva,** M., Ronzulli, J, Romo, A.M., Paganoni	*Journal of Nonparametric Statistics*
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A Spearman dependence matrix for Multivariate Functional Data	**F., Ieva,** M., Ronzulli, J, Romo, A.M., Paganoni	*Journal of Nonparametric Statistics*
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An innovative artificial intelligence-based method to compress complex models into explainable, model-agnostic and reduced decision support systems with application to healthcare (NEAR)	K. Kassem, M. Sperti, A. Cavallo, **A. M. Vergani**, D. Fassino, et al.	*Artificial Intelligence in Medicine*
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Optimized and Scalable Precoating-Free Reprogramming of Human Peripheral Blood Mononuclear Cells into iPSCs	**E. Fiacco**, **S. Landi**, **J. Zasso**, **C. Ambrosini**, **G. Fagà**	*Current Protocols*
IHMCIF: An Extension of the PDBx/mmCIF Data Standard for Integrative Structure Determination Methods	B. Vallat, B. M. Webb, J. D. Westbrook, T. D. Goddard, C. A. Hanke, **A. Graziadei**, et al.	*Journal of Molecula Biology*
Castanet: a pipeline for rapid analysis of targeted multi-pathogen genomic data	R. Mayne, S. Secret, C. Geoghegan, A. Trebes, K. Kean, K. Reid, G. Lin, M. A. Ansari, **M. de Cesare**, et al.	*Bioinformatics*

2.3 Strategy

THE NEW 2024-2028 STRATEGIC PLAN

A DYNAMIC AND EVOLVING STRATEGIC PLAN

The 2024-2028 Strategic Plan provides an overview of HT's activities over the next years. Since research and discoveries are, by definition, unpredictable and plans evolve in response to new ideas and opportunities, the Strategic Plan will be regularly reviewed and updated. Therefore, it must be seen as a 'dynamic and evolving' plan to shape the future of the institute. In the course of its development, plans for HT will have to be supplemented, refined or improved to adapt to the changing landscape of biomedical research.

HT will do its best to involve internal and external stakeholders, who will play a key role in the implementation and evolution of the Strategic Plan.

SCIENTIFIC RESEARCH ACTIVITY

Leveraging the cutting-edge scientific expertise and thematic specialisation of each Research Centre, HT is entering a new phase in its development, refining and extending its strategic vision. HT intends to pursue interdisciplinary and crosscutting research programmes, known as Flagship Research Programmes (FRPs), aimed at investigating the molecular mechanisms underlying various complex pathophysiological processes.

These programmes will be fuelled by the scientific contribution of internal research groups, organised into coordinated lines of activity and expertise, oriented towards the achievement of common scientific objectives.
The FRPs represent an integrated research design and conduct model, fuelled by the synergetic contribution of internal research groups, organised into coordinated lines of activity and expertise, with the aim of pursuing common, high-impact scientific goals. Within the framework of the Strategic Plan, the following Flagship Research Programmes have been defined:

1. Cardiovascular and metabolic diseases;
2. Multimodal AI across scales;
3. Immunogenomics and cancer;
4. Neurodevelopmental and neuropsychiatric conditions;
5. Ciliopathies.

The FRPs offer a number of strategic and operational advantages, including:

- the overcoming of traditional disciplinary boundaries, promoting interdisciplinary research and strengthening collaboration between centres;
- the identification of shared scientific objectives requiring heterogeneous expertise, thus raising the ambition and impact of the Institute's research;
- the focus on basic biological mechanisms, with relevant potential effects on understanding human health and disease;
- the possibility of identifying gaps in existing knowledge and technologies, facilitating the involvement of new skills and the definition of strategic collaborations with external partners;
- the strengthening of scientific relations with the academic world through structured cooperation initiatives.

To support this new vision, HT envisages the activation of new research areas complementary to its existing centres, with the aim of enhancing critical mass and overall scientific capacity. In addition, a competence-building plan has been initiated, through the recruitment of new research groups, particularly in the fields of Molecular Cell Biology and Biophysical Modelling and Simulation.

SCIENTIFIC INFRASTRUCTURE AND SERVICES

HT's ambition to become a reference institute for life sciences is also mirrored in its second objective, namely the creation and management of shared research infrastructures that meet the needs of the Italian life sciences research community in the omics, imaging, structural biology, data management and analysis areas.

The first two objectives of HT are distinct though closely related. Indeed, the complexity of the molecular mechanisms that regulate life and their interactions calls for a wide range of skills and tools to collect, manage, analyse and interpret data in an unbiased manner.

The National Facilities are another unique feature of HT at national level, and Italian researchers have access to state-of-the-art equipment, tools and technologies to carry out their projects and receive high-quality scientific training.

ADVANCED SCIENTIFIC TRAINING

The third objective of HT is to provide advanced scientific training, particularly to young scientists, in order to train the next generation of top researchers. Scientific training is offered both to HT scientists and to the national and international scientific community.

COOPERATION WITH INDUSTRY AND TECHNOLOGY TRANSFER

HT's fourth objective is to disseminate the skills, knowledge and technologies available or developed within other research institutes or industry, in order to turn scientific results into new products and services for the benefit of society.

HT promotes networking between its research facilities, (inter)national research institutes and industry in order to accelerate technology transfer in the life sciences, an area where the path from 'discovery' to 'market' is particularly long (several years/ decades).

The National Facilities also serve as open platforms facilitating interactions between the Italian research community, technology providers and industry with the aim of promoting technology transfer.

HT IN THE LIFE SCIENCES ECOSYSTEM AND POTENTIAL OPPORTUNITIES AND EXTERNAL COLLABORATIONS FOR ITS DEVELOPMENT

HT is complementary and synergetic with similar publicly founded private institutions within the national research ecosystem. HT aims to become an 'interaction hub', facilitating and coordinating interconnection and cooperation between the Italian research community, which will benefit from the complementary goals and expertise of these institutions. With its vocation for life sciences research, the development of biomedical research technologies and the provision of services through its facilities, the Human Technopole Foundation can be seen as a driving force for advancing science and the economy. Interactions with external partners, users and collaborators (universities, research institutes, industry, start-ups, technology developers, etc.,...), within the framework of the National Facilities activities, will further boost HT's growth.

REVISION OF HT'S MODEL FOR MANAGEMENT AND ADMINISTRATION

The complexity of HT's functions, its ambition to become an internationally renowned research institute and the scale of its operations call for an appropriate and overall management and administration system to achieve its objectives. The renewal and refinement of HT's research vision are thus complemented by the review and, possibly, re-examination of the institute's internal management and organisation, its structure and administrative processes, with the aim of providing efficient and flexible services, improving cost-effectiveness and creating an optimal working environment for HT's scientists.

HT'S CULTURE AND CORE VALUES

Through its scientific activities, HT actively promotes open science, research integrity and the application of the rules of good scientific practice, widely sharing its results, data and software and establishing a culture of honesty, transparency and openness in research planning and conduct, data management and analysis, and scientific communications.

In general, in carrying out all its activities, both internally and externally, HT strives to promote a culture of research and innovation based on a set of core values:

- **Integrity**: all HT's activities must be carried out in line with international best practice and in compliance with ethical values, ethical obligations and professional standards;
- **Inclusion**: HT supports and protects diversity by fostering equity between all genders, ethnicities and cultures. In fact, by promoting equality and integrating diversity, HT favours
  inclusion so that everyone can feel accepted and valued, while also condemning any form of discrimination or harassment;
- **Openness and Collaboration**: HT pursues all its activities in an open and collaborative manner, involving academics, clinicians, industry and other stakeholders to promote research and innovation in life sciences.

HT's working environment is based on collaboration, interdisciplinarity and strong teamwork. In addition, HT engages in activities which benefit the national and international research community, such as offering services through shared facilities, training and career development opportunities and awareness-raising initiatives.

Scientific outreach and communications are key components for pursuing HT's mission. These activities help increase the visibility and recognition of the Human Technopole Foundation, promoting greater public awareness of the value of basic research as a driver of discoveries that are fundamental to human health and to scientific, technological and social progress.

In addition to establishing transparent operational processes that support responsibility for achieving the scientific objectives described above, the Human Technopole Foundation undertakes in particular to:

- promote equality, diversity and inclusion at work, in line with the best practices of national and international labour and human rights standards. In 2022, HT developed and published the Gender Equality Plan (GEP), an action plan for the implementation of the equality, diversity and inclusion policy at work. The Sustainability Committee (a committee within the Supervisory Board) and the Gender Equality Team (GET, consisting of HT staff members with different functions and expertise within the institution) guide and monitor the implementation and monitoring of the best workplace practices outlined in HT's GEP. In 2024, the GEP was updated for the 2025-2027 period;

- define policies on research ethics and integrity, good research practices and the handling of scientific misconduct allegations;

- create and maintain an institutional culture based on scientific excellence, integrity, collaboration, inclusiveness and transparency.

The 4 main strategic objectives of the Human Technopole Foundation are detailed below:

2.3.1 PROMOTING RESEARCH FOCUSING ON THE FUNDAMENTAL MECHANISMS UNDERLYING HUMAN BIOLOGY, WHICH ARE RELEVANT TO PEOPLE'S HEALTH AND WELL-BEING

This strategic objective includes the following steps:

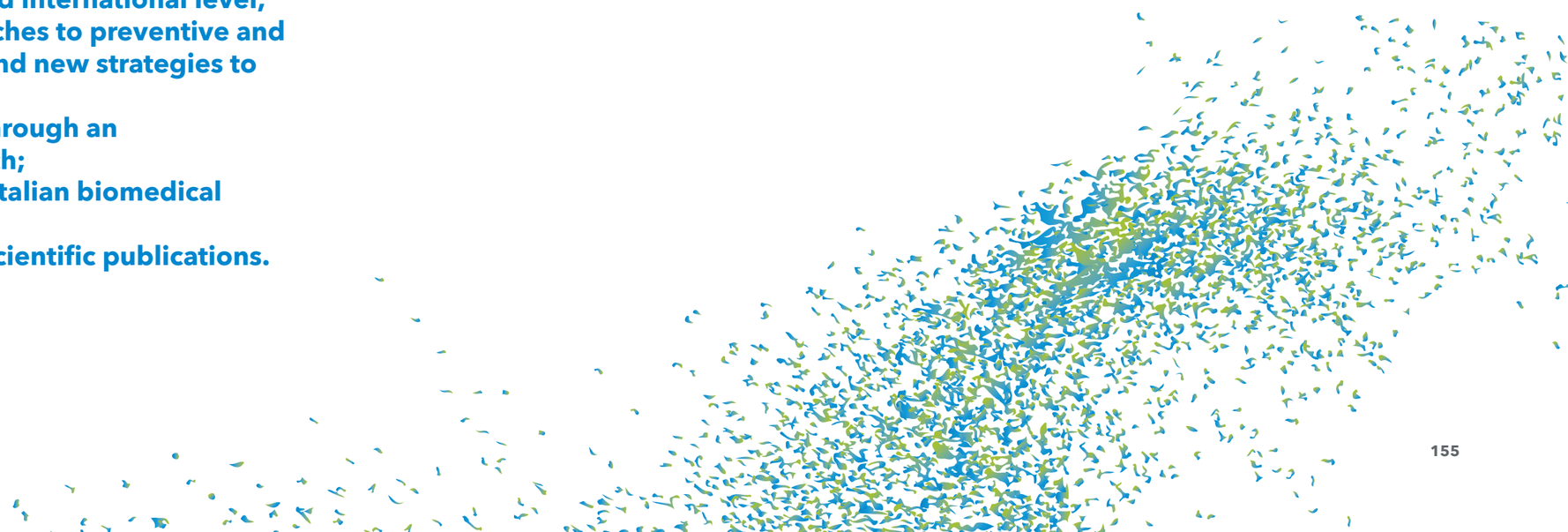
- **Developing scientific research programmes of excellence at national and international level;**
- **Developing new approaches to preventive and personalised medicine and new strategies to support public health;**
- **Generating innovation through an interdisciplinary approach;**
- **Helping to promote the Italian biomedical research system;**
- **Producing high-quality scientific publications.**

HT'S APPROACH TO RESEARCH

Like any other form of life, the human being is a complex system made up of elementary components. Each component has its own functions though, by interacting with other components, it gives rise to overall system properties that are more than the sum of its parts. Therefore, understanding the interactions between such components is fundamental to understanding biological systems, including human physiology and its pathological dysfunctions.

HT researchers study the emergent properties of biological systems across scales and their evolution over time; they also adopt a multiscale systems biology approach, which ensure holistic investigations of biological systems and their components at different complexity levels. Systems biology requires a combination of experiments, theory and computer science. Theory helps design experiments, while computational and AI-based methods are used to derive biological information from complex datasets. Predictive models allow experiments to be (in)validated and biophysical modelling helps predict the influence of biological and physical factors on complex systems.

Five broad, complementary and highly relevant biomedical and health research areas have been chosen to form the basis of HT's initial research plans. As a result, HT's Research Centres have been established based on these broad disciplines or fields and applied to many different subject areas and problems related to human health and disease.



GENOMICS

Genomics is an essential component of modern biomedicine. In general, research in this field seeks to identify the mechanisms that regulate gene expression and how hereditary genetic information gives rise to differences between individuals that affect their health and wellbeing. Genomics research at HT is developed into and consists of two complementary research programmes: one in functional genomics and the other in medical and population genomics. The Functional Genomics programme aims to identify the mechanisms regulating the expression of genes and their biological functions, while the Population and Medical Genomics programme studies how heritable genetic information translates into phenotypic traits and causes specific defects.

NEUROGENOMICS

Neurogenomics is another very important research area for HT, also in the light of the fact that neurological disorders represent a significant burden on public health. At the same time, neurogenomics is a research area where significant benefits can still be reaped from the integration of genomics, disease modelling and other cutting-edge methods. In particular, the application of new technologies to the study of neurogenomics is bound to integrate and create synergies with high-profile national and European research activities and programmes. HT research in neurogenomics studies the mechanisms responsible for neuropsychiatric and neurological disorders (from neurodevelopmental to neurodegenerative diseases) by combining basic and translational research, different experimental systems (e.g. brain organoids, animal models and epidemiological cohorts) and computational approaches.

STRUCTURAL BIOLOGY

HT's scientific strategy is strongly focused on structural biology, which is centred around studying the three-dimensional structure of macromolecules. In addition to the importance of such studies, geared towards discovering disease-regulating mechanisms, the strategic focus on structural biology is the study of how macromolecular nanomachines function and harmonise their activities in cells and how they are (de)regulated in human diseases.

COMPUTATIONAL BIOLOGY

Research in the areas described above generates tremendous amounts of data. Hence, close integration with computational biology research, which is essential to every aspect of modern life science research, is necessary. HT researchers are developing new mathematical and computational approaches - from mathematical modelling of dynamic systems to machine learning and Artificial Intelligence - to analyse and interpret biological data.

HEALTH DATA SCIENCE

Statistical methods and big data can be used to analyse different types of large-scale information or to analyse and solve public health problems. The primary goal of HT's research in this field is to understand, prevent and treat disease, using large-scale data science applied to biological and medical data to improve population health.

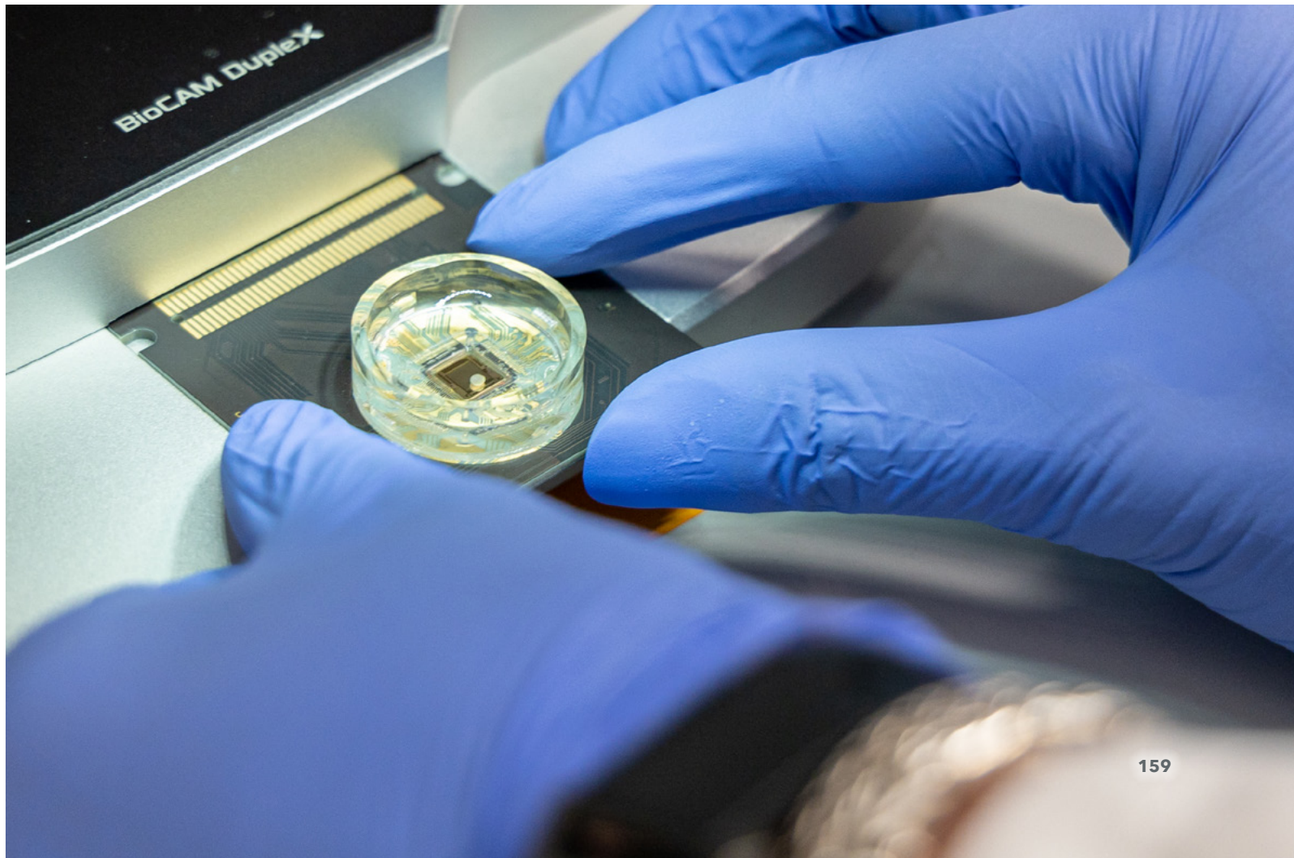
HT therefore already has extensive experience in studying molecules, organisms and populations. However, in order to pursue HT's multiscale research programmes, new expertise has been added to fill existing knowledge and approach gaps. Other research areas have therefore been established such as:

- **Molecular Cell Biology**, including related fields such as mechanobiology and cell metabolism. The aim of Molecular Cell Biology is to study the molecular basis of biological processes using a variety of approaches and perspectives (from standard molecular methods to biochemical reconstitution and biophysical manipulation) and across different scales (from molecules to cells and tissues, with the cell at the core).
- **Biophysical Modelling and Simulation** to elucidate the mechanisms underlying human physiology.

FLAGSHIP RESEARCH PROGRAMMES (FRPS) RELEVANT TO HUMAN HEALTH AND DISEASE

Pathological processes have an impact on cell and tissue homeostasis and are strongly related to their physiological counterparts. Therefore, the study of human diseases can offer functional paradigms for understanding fundamental molecular mechanisms and create opportunities for translational research. In the coming years, HT intends to i) pursue research programmes known as FRPs, which are interdisciplinary and crosscutting programmes based on the ongoing and planned work of HT's Groups and Research Centres, and ii) clarify the fundamental molecular mechanisms underlying various pathophysiological processes across different scales.

These programmes aim to promote synergies between HT's Research Centres and catalyse interactions between HT researchers to create a flow of activities and expertise aimed at achieving common goals for the entire institute. Synergies will arise not only between Research Centres, but also between Flagship Research Programmes. HT's shared infrastructure will strongly support the programmes through constant technology development and optimisation.



In detail, the Flagship Research Programmes are as follows:

CARDIOVASCULAR AND METABOLIC DISEASES

This programme focuses on three broad areas of metabolic dysregulation: cardiometabolic diseases, metabolic liver disease and metabolic hormone regulation in the central nervous system.

Cardiometabolic diseases, which include conditions such as heart disease, stroke and diabetes, are collectively the main causes of morbidity and mortality worldwide.

The cardiometabolic disease part of the programme is based on the assumption that the integration of genomic data with individual-specific characteristics (or traits) can provide meaningful information on cardiometabolic diseases. The programme will combine molecular assays with multi-omics analysis of the 'expressed genome' (e.g. RNA, proteins and metabolites), electronic medical records and population and cohort studies of patients to identify causal pathways for cardiometabolic diseases. These analyses will be complemented by targeted in-depth phenotyping of smaller groups of individuals to identify and validate new therapeutic targets. HT researchers will also develop risk assessment tools, strategies and interventions to improve the prevention and management of cardiometabolic diseases in Italy and worldwide.
Metabolic liver disease and metabolic hormone regulation in the central nervous system aim to study the processes that induce cells to dysmetabolic states. Addressing this problem requires the integration of molecular mechanisms with metabolism regulation at all levels, from the molecular and subcellular level (organelles) to the organic level and to body physiology.

The metabolic liver disease part of the programme will focus on identifying the molecular mechanisms leading to dysmetabolic regulation in various types of liver diseases (e.g. non-alcoholic liver steatosis, non-alcoholic steatohepatitis, primary biliary cholangitis and ciliopathies). In addition, this programme will also address nutritional and metabolic diseases (e.g. obesity), as well as the role of nutrition in the aetiology of diseases.

The part of the programme devoted to metabolic hormone regulation in the central nervous system will study the impact of endocrine and metabolic alterations on brain development and health.

The programme on Cardiovascular and Metabolic Diseases will be integrated with the programme on Evolving Diseases - Cancer.

MULTIMODAL AI ACROSS SCALES

The mission of the 'Multimodal AI Across Scales Flagship Research Programme' is to integrate experimental pipelines linking biological scales with state-of-the-art computational methods, including multimodal data analysis, modelling and biophysical simulation to achieve a comprehensive mechanistic understanding of biological systems.

HT thus aims to promote interdisciplinary collaboration and harness cutting-edge technologies to advance fundamental research in human physiology and disease, from molecules to populations.

IMMUNOGENOMICS AND CANCER

Unlike engineered systems, biological systems can react to perturbations, adapt and evolve. Cancer, immune-mediated and inflammatory diseases are often referred to as 'evolving diseases' because of their ability to evolve and progress over time. These diseases represent a huge health and economic burden. In collaboration with Italian and foreign hospitals, HT researchers will study the molecular basis of evolving diseases. They will perform population-scale multi-omics studies, investigate rare autoimmune diseases and apply machine learning techniques to infer cellular and disease mechanisms from imaging and molecular data. Mathematical and biophysical modelling will enable them to identify cancer vulnerabilities, to study the evolution of antibiotic resistance in bacteria and to find parallels with drug resistance in cancer.

This systematic approach will be complemented by state-of-the-art computational methodologies to analyse complex data sets.

NEURODEVELOPMENTAL AND NEUROPSYCHIATRIC CONDITIONS

Neurodevelopmental conditions (e.g. autism spectrum disorders) and neuropsychiatric disorders (e.g. schizophrenia) are complex diseases deriving from multiple genetic and environmental factors. HT researchers aim to investigate and analyse the fundamental mechanisms of these diseases across biological scales.

The main objective of this programme is to improve the ability to diagnose, prevent and support the broad spectrum of neurodiverse individuals. This will be achieved through the phenotyping of clinical cohorts as well as the integration of cohort-derived clinical data with data from multi-omics analyses, stem cell reprogramming, brain organoids and other in vitro and in vivo models.

CILIOPATHIES

Cilia are hair-like cell organelles that extend from the surface of various cell types in the human body and perform various vital functions. Some cilia are dedicated to motility (motile cilia), like those of the hair cells in the lungs that push inhaled particles out of the airways. Others play a role in sensory perception and cell signalling (primary cilia), such as those in the hair cells of the ear or the epithelial cells of the kidney. Not surprisingly, given their almost ubiquitous presence, defects or abnormalities in the structure of cilia occur in a large group of diseases, called ciliopathies. Ciliopathies range from infertility to visual and cognitive disorders, cystic diseases, skeletal abnormalities, hydrocephalus, situs inversus and persistent respiratory problems.

Understanding the molecular mechanisms underlying ciliopathies requires an interdisciplinary, multi-scale approach involving multi-omics and structural analyses and advanced imaging techniques. HT is an ideal hub to pursue this ambitious goal, thanks to its expertise in cilia and studies on ciliated systems such as liver, kidney, brain, pancreas and thyroid, combined with expertise in population genomics, transcriptomics and cutting-edge structural biology, imaging and image analysis technologies.

2024 ACTIVITIES AND RESULTS

During 2024, the institute continued to build critical mass, counting **25** research groups and a population of 370 scientific staff in its research centres, facilities and services at the end of the year. During the year, HT scientists achieved many revolutionary scientific results in their respective fields, resulting in **190** peer-reviewed publications in prestigious international journals, as reported in chapter 2.2.5 '*Intellectual Capital*' of this document.

Below are some examples of the projects and initiatives launched by HT scientists during the year:

- Two HT research projects won the Telethon and Cariplo Foundation's grant to uncover the genetic and molecular mechanisms of acute myeloid leukaemia and congenital adrenal hyperplasia (Rare Diseases: Telethon-Cariplo funds two research projects at HT - Human Technopole);
- HT received a grant from the ItsME Foundation to develop a human pluripotent stem cell (hPSC)-derived brainstem model to understand brainstem encephalitis. (Autoimmune encephalitis: ItsME Foundation funds Harschnitz Group - Human Technopole);
- HT, ELIXIR Italia, the national node of the European life sciences research infrastructure coordinated by the National Research Council (CNR), and the Centro Cardiologico Monzino, as the Italian coordinating centre, were selected as the Italian partners of Genome of Europe (GoE), the largest EU-funded genomic project, whose ultimate goal is to make prevention and personalised treatment possible for all European citizens. (Italy at the centre of the Genome of Europe project - Human Technopole);
- The 'Prune' Project, studying the spatial arrangement of nuclear proteins and how this contributes to optimal cell functioning, and the 'TynyTrend' project, which will study which environmental factors contribute to premature births in order to contribute to future prevention policies, received a grant from the prestigious Marie Skłodowska-Curie actions post-doctoral fellowship (MSCA) (Prime Fellowship Marie Curie A Human Technopole - Human Technopole);
- Human Frontier Science Program (HFSP)-funded project on the molecular mechanisms of the thyroid (Karthik Ramanadane wins HFSP Fellowship for Thyroid Studies - Human Technopole).

In addition, work continued on some important strategic initiatives launched in previous years, namely:

- The 'Radialis' research project, which seeks to understand the principles governing genome architecture (Human Technopole awarded ERC Consolidator Grant to study the genome in 3D - Human Technopole);
- Participation in the international public-private consortium **iCARE4CVD** (individual care from early risk of cardiovascular disease to established heart failure) with the aim of tailoring the prevention and treatment of cardiovascular disease using large data sets, a multitude of biomarkers and artificial intelligence. (Italy joins the iCARE4CVD consortium - Human Technopole);
- Two HT research projects, focusing on the origin and evolution of cancer and coordinated by Francesco Iorio and Andrea Sottoriva, respectively, were awarded an **ERC Consolidator Grant**, a major European research fund for scientists who have already started their independent scientific careers and that is part of the European 'Horizon Europe' research and innovation programme (Two ERC-funded projects to search for tumours' weaknesses - Human Technopole);
- A thyroid function study received an ERC Starting Grant, through the 'Thyromol' project, which aims to investigate how the molecular mechanisms of thyroid hormone production, release and storage are mutually regulated to provide the right levels of thyroid hormones to the body, laying a solid foundation for alternative and more targeted strategies to control thyroid hormone synthesis (Europe awards Human Technopole's research on thyroid - Human Technopole;
- Development of a project with Eurac Research, aimed at enriching the content of the CHRIS population study biobank. This study monitors people's health continuously, 'from molecule to disease'; the population studies designed with this approach are the cornerstone for the medicine of the future: predictive and precision medicine that is based on people's biology (Shifting focus from disease to human health - Human Technopole);
- 'NEUROCOV' international research project, focusing on the long-term neurological and psychiatric effects of COVID-19. The five-year project, funded by the European Commission, was developed by HT and the German Centre for Neurodegenerative Diseases (DZNE) and involves ten institutes from seven countries. HT is studying the underlying mechanisms of the disease with a view to developing new therapies. In particular, the study focuses on the molecular mechanisms that are activated within cells in the so-called 'NeuroCOVID' - the set of neurological and neuropsychical disorders related to COVID-19 infection. This new knowledge will help to develop new therapies and approaches to predict the risk of neurological symptoms. Data will be collected through studies on patients of all ages in several European countries that will also involve 'Long COVID' patient communities (https://humantechnopole.it/en/news/human-technopole-studies-neurological-and-psychiatric-effects-of-covid-19/);
- Agreement between the Lombardy Regional Authority and the Human Technopole Foundation to carry out a project called CoV-CVD. The agreement grants HT access to health records to investigate the effect of SARS-CoV-2 infections on the short-, medium- and long-term risk of myocardial infarction, stroke and other cardiovascular events, in order to estimate the extent and impact of these adverse events on the population and identify people at increased risk;
- Genomic projects aimed at improving understanding of genetic diversity and disease predisposition in Italy - Comprehensive genomic characterisation of participants in the 'Moli-sani' study conducted by the Neuromed IRCCS Mediterranean Neurological Institute;
- High-throughput brain organoid longitudinal profiling for neurodevelopmental disease deconvolution of cohorts from the Associazione Oasi Maria Santissima IRCCS in Troina, Sicily.

HT's scientific activities are regularly monitored and evaluated to ensure scientific excellence in line with international research best practices and standards. In terms of assessing the scientific activities of its Research Centres and Facilities, in July 2022 HT approved the '*Internal procedure on the assessment of Human Technopole Research Centres and Core Facilities*'. The document defines the methods to be followed (frequency, panel involved, documentation to be prepared, process, purpose) to assess the scientific activities of HT's Research Centres and Core Facilities. The procedure is intended to provide the Director, the Management Committee and the Supervisory Board of HT with data and information on the performance of individual Group Leaders, Heads of Research Centres and Heads of Core Facilities.

2.3.2 SUPPORTING RESEARCH BY PROVIDING TECHNOLOGIES TO THE ITALIAN SCIENTIFIC COMMUNITY THROUGH SHARED RESEARCH INFRASTRUCTURES, THE NATIONAL FACILITIES

The main aims of this strategic objective are as follows:

- **To provide high quality infrastructure, equipment and services;**
- **To ensure high quality in research environments and areas;**
- **To provide accessible infrastructure, equipment and services to external and internal researchers.**

HT's research is supported by state-of-the-art scientific infrastructure and facilities, which are essential to preserve competitiveness in today's international research scene. HT's plans for user-accessible scientific services are aimed at meeting the needs of the research community by providing access to equipment and technologies that are not readily available, especially to scientists working in Italy. The development, use and access to such infrastructure and equipment are, therefore, an integral part of HT's strategic vision.

A concrete step taken with this strategic objective in mind was the conclusion of the Agreement, introduced by Article 1, paragraph 275 of Law No. 160 of 27 December 2019, between HT and the Italian founding Ministries. The Agreement is aimed at enhancing HT's mission in its specific role as an infrastructural scientific hub supporting national scientific research. The scope of the Agreement is precisely the identification, implementation and management of new infrastructural facilities known as 'National Facilities', i.e. facilities, resources and services that can be used by the scientific community to conduct high-quality research in their respective fields.

The model adopted is therefore aimed at supporting research through large-scale infrastructures, i.e. National Facilities (NFs) and Core Facilities (CFs).

The latter provide technologies not included in NFs but widely used by HT research groups and potentially functional for NFs. If CFs are deemed useful by the national scientific community, they might be made available as NFs in the future and contribute to research projects of external users to ensure their success.

NFs and CFs are managed independently by HT's research groups and coordinated by a Head of Research Facilities and Services, to ensure fair and equal access to the shared infrastructure for both internal and external users. Keeping the NFs and CFs of HT at the forefront of technological innovation is therefore a precondition for their operation and growth. The commitment of shared infrastructures in technology development will always and exclusively be aimed at the implementation of services of general interest to the scientific community.

The National Facilities (NFs) were thus created in accordance with the Agreement between HT and the founding Ministries, following a two-stage public consultation with the Italian research community. They provide the national scientific community and HT researchers with state-of-the-art technologies in the fields of omics, imaging and data management and analysis. They also help to foster a dynamic infrastructure that encourages collaboration, knowledge sharing and innovation among researchers at national level.

In the course of 2023, the Supervisory Board therefore resolved to set up the first five high-tech National Facilities available to the national research community.
The National Facilities identified are:

- National Facility for Genomics;
- National Facility for Genome Engineering and Disease Modelling;
- National Facility for Structural Biology;
- National Facility for Light Imaging;
- National Facility for Data Handling and Analysis.

Each National Facility includes specific operating units called Infrastructure Units (IUs), defined as the set of people, tools, resources, technological procedures and state-of-the-art experimental protocols required for a specific thematic line of research.

Access to the National Facilities by external users affiliated with Universities, Research and Healthcare Scientific Institutes (IRCCS), and Public Research Institutions is supported by open access calls as provided for by Law 160/2019, Art. 1, para. 276, letter b. Access is granted on the basis of the principles of scientific excellence, with the aim of supporting quality research. The quality of applications is assessed and approved by a Commission of experts, the Independent Permanent Evaluation Commission (CIVP), which defines the selection procedures to access the National Facilities as laid down in Article 6 of the Agreement.

The CIVP members selected and appointed by the Supervisory Board of the Human Technopole Foundation on 15 November 2023, of which **Walter Ricciardi**, Chair of the HT Scientific Committee, is also an ex officio member, are (in alphabetical order):

- **Prof. Juha Kere**, Professor of Molecular Genetics, Department of Biosciences and Nutrition, Karolinska Institute, Stockholm, Sweden;
- **Prof. Filippo Mancia***, Professor of Physiology and Cellular Biophysics, Department of Physiology and Cellular Biophysics, Columbia University, New York, United States;
- **Prof. Samuele Marro**, Associate Professor of Neuroscience and co-director of the Stem Cell Engineering Core, Black Family Stem Cell Institute, Icahn School of Medicine at Mount Sinai, New York, USA;
- **Dr. Jan Peychl**, Senior Service Leader, Light Microscopy Facility, Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany;
- **Prof. Giampietro Schiavo**, Professor of Cellular Neuroscience, Department of Neuromuscular Diseases, Queen Square Institute of Neurology, University College London, UK;
- **Prof. Maria Secrier**, Associate Professor in Computational Cancer Biology, Institute of Genetics, Department of Genetics, Evolution and Environment, University College London, UK;
- **Prof. Arianna Tucci****, Associate Professor in Genomic Medicine at Queen Mary University of London, UK;
- **Dr. Virginie Uhlmann**, Group Leader, European Bioinformatics Institute (EMBL-EBI), Cambridge, UK and Director of the BioVision-Center, University of Zurich, Switzerland.

*President - **Vice President

For a detailed description of the National Facilities, please refer to chapter *1.2 'Research Centres and Scientific Facilities'* and the in-depth information and documents published on the HT website at the following link: National Facilities - Human Technopole.

The HT website presents the heads of the first 5 National Facilities, the main activities and the objectives of each of them:

- The National Facility for Genomics with Clelia Peano - Human Technopole;
- The National Facility for Genome Engineering & Disease Modelling with Giovanni Fagà - Human Technopole;
- The National Facility for Structural Biology with Paolo Swuec - Human Technopole;
- The National Facility for Light Imaging with Nicola Maghelli - Human Technopole;
- The National Facility for Data Handling and Analysis with Alberto Riva - Human Technopole.

2024 ACTIVITIES AND RESULTS

Following the launch of the pilot call in June 2024, more than **120** applications were submitted by researchers from all over Italy interested in accessing the five National Facilities of HT to pursue their research projects.

In particular, the applications submitted for the first 'pilot' call were reviewed by the CIVP, which assigned a score according to their scientific merit on the following scale: high, medium or low.

Out of the **41** applications received, 92% were granted access to NF services, which, in 2024, were thus supplied to **38** projects submitted by the national scientific community.

In terms of geographical origin, around 60% of the said applications came from research institutes, universities or IRCCSs in northern Italy, while the remaining 40% came from central and southern Italy.

2.3.3 OFFERING ADVANCED SCIENTIFIC TRAINING TO THE ITALIAN SCIENTIFIC COMMUNITY

This strategic objective takes the shape of promoting knowledge sharing, fostering experience exchange between scientific communities and engaging in training the future generation of researchers.

SCIENTIFIC TRAINING AT HT

One of the most important aspects for HT is improving the skills of its staff through training programmes and initiatives. HT supports researchers in their scientific career development by providing training in cutting-edge topics and technologies in biomedical and life sciences research. It also actively promotes the career development of scientists at all stages of their professional life.

Training at HT is designed not only for internal scientists but also for external researchers through the development and provision of advanced training opportunities.

HT's dynamic and multidisciplinary nature provides an ideal environment to foster the growth of talented young scientists. Training activities are inclusive and designed to promote a diverse environment.

IN-HOUSE SCIENTIFIC TRAINING

HT's in-house training is designed to enable scientists to reach their full potential as independent researchers and successful future scientists. In-house training activities are designed for trainees, doctoral and post-doctoral researchers, and group leaders.

In-house training

Trainees: Training projects are available within HT's research groups for students enrolled in university courses (Bachelor's degree, Master's degree) and for postgraduate researchers who have graduated in the last 12 months. Trainees can benefit from an international scientific environment that grants access to a rich training programme and career development activities.

Doctorates: HT participates in doctoral programmes in cooperation with national and international academic institutions. For example, the Foundation is a host institution of the European School of Molecular Medicine (SEMM) PhD programme in Systems Medicine. In addition, HT is part of the joint doctoral programme in Data Analytics and Decision Sciences (DADS) with Politecnico di Milano and is the host institution of the Theoretical and Scientific Data Science (TSDS) - SISSA doctoral programme and the AI Doctoral Course for Health and Life Sciences.

Postdoctoral training: Postdoctoral training at HT is designed to broaden and strengthen the research and soft skills of postdoctoral researchers, increasing their career prospects and enabling them to become successful independent scientists. The programme includes training courses in specific research areas and technologies, as well as seminars and conferences with top international speakers on various research-related topics.

Group Leader & Facility Manager training: Group Leaders and Facility Managers benefit from a comprehensive training programme designed to enhance the skills needed to effectively run a laboratory and to establish themselves as leaders in their field. The training programme includes laboratory leadership courses, mentoring programmes, career development activities, as well as access to high-level scientific lectures and speakers.

EXTERNAL SCIENTIFIC TRAINING

The general and guiding theme of HT's external training activities is the intention to create a centre of excellence for the training of promising researchers in the biomedical sciences, while providing broad access to the expertise, methods and resources of HT.

HT's training events for external scientists include symposia, workshops, conferences and theoretical and practical courses at the forefront of scientific and technological development, held on HT's premises and highly relevant to modern biomedical research. These events are open to the national and international community, especially emerging scientists.

Each initiative is designed by a scientific Committee composed of internal and/or external scientists. With the growth of HT's community and its scientific training offering, some courses in scientific areas that are crucial to the Human Technopole Foundation have become recurring courses, such as courses on Deep Learning Image Analysis and on Computational Neurogenomics, and symposia on DNA/RNA sequencing technologies.

SCIENTIFIC VISITORS

HT offers researchers from the national and international scientific community the opportunity to spend a period of time in its laboratories to develop research collaborations, to learn and/or teach cutting-edge methods and technologies, or to use its infrastructure and Scientific Facilities. HT is open to hosting visiting researchers as long as there is a mutual interest between the Scientific Visitor and the Scientific Host. Specifically, a Scientific Visitor is an external researcher from anywhere in the world and at any stage of his or her career, who is hosted for a variable period (from one week up to one year). During this period, a Group Leader or Head of Facility of HT (the 'Scientific Host') hosts the scientific visitor in their laboratory or Facility to collaborate on a research project of mutual interest and/or to train or be trained in a specific topic or technology.

Following the launch of a dedicated programme, these initiatives were regulated as early as 2022 through the Management Committee's approval of the 'Internal Procedure on Scientific Visitors'.

EARLY CAREER FELLOWSHIP (ECF) PROGRAMME

The ECF programme is designed to support career development by helping talented researchers start their own independent research.

The programme is open to researchers of all nationalities who have completed a PhD in the last 8 years and whose projects focus on one of HT's research areas. Thanks to the ECF programme, young researchers are given the opportunity to win a scholarship worth €200,000/year for five years to support their research activities.

2024 ACTIVITIES AND RESULTS

During 2024, HT continued the doctoral programmes initiated in previous years, which are summarised below:

- Since 2018, the Human Technopole Foundation has been part of the joint PhD programme in Data Analytics and Decision Sciences (DADS) with the Politecnico di Milano; this HT/PoliMi collaboration involves three departments – Electronics, Information and Bioengineering (DEIB), Management, Economics and Industrial Engineering (DIG) and Mathematics (DMAT) – and the Analysis, Decisions and Society Centre (now Health Data Science).
The programme aims to train highly-qualified data analysts and data managers who will be able to carry out important research for the health system and healthcare at universities, clinical research centres, hospitals, health authorities, international institutes, financial institutions, technology companies, regulatory authorities and other public bodies;
- In 2019, HT joined the four-year PhD programme in Systems Medicine of the European School of Molecular Medicine (SEMM) as a host institute. SEMM, developed out of the collaboration between several Italian life sciences research institutes, the State University of Milan and the University of Naples 'Federico II', is a private foundation that promotes training and integrates basic, translational and clinical research in the emerging fields of biomedicine. In this context, SEMM's PhD programme in Systems Medicine offers PhD courses in Molecular Oncology, Human Genetics, Computational Biology and Medical Humanities, as well as comprehensive training courses, mainly taught by the faculty of SEMM's host institutions, in areas relevant to and focused on these different fields of biomedicine;
- In 2021, HT was admitted as a host institute to the national PhD programme in Artificial Intelligence (AI), coordinated by the National Research Council (CNR) and consisting of five PhD courses involving 61 universities and research institutes. HT has also joined the 'AI & Health and Life Sciences' doctoral course as a host institute, whose lead university is the Campus Bio-Medico University in Rome. HT's participation is considered to be of great strategic value, both in terms of attracting outstanding young computational scientists and in terms of bringing in expertise to help shape activities in the field of AI at national level;
- In 2021, HT signed a memorandum of understanding with the International School for Advanced Studies (SISSA), the' Federico II' University of Naples and the University of Turin. These agreements not only lay the foundations for scientific partnerships with these academic institutions, but also offer the possibility of organising joint training initiatives;
- In 2022, a further doctoral agreement was signed under which HT will be a host institute for the PhD programme in 'Theoretical and Scientific Data Science' at the International School for Advanced Studies (SISSA);
- In 2023, a number of opportunities were offered to young researchers, such as: Marie Sklodowska-Curie Action postdoctoral fellowships, doctoral fellowships through DADS on projects in Health Data Science or Population and Medical Genomics, doctoral fellowships through SEMM, doctoral fellowship in Artificial Intelligence.

Moreover, the number of HT doctoral and post-doctoral students continued to increase in 2024, reaching **82** and **56** respectively. HT's PhD and postdoctoral communities were an important target for the numerous internal training and career development events organised for HT scientists during the year. **36** internal training courses and workshops were also offered, covering topics ranging from technical skills (flow cytometry, high-performance computing, statistics, optical microscopy, image analysis, etc.) to soft skills (e.g. leadership, scientific writing, etc.) and career development. These training opportunities were complemented by the organisation at HT of over **70** seminars, held by HT researchers and high-profile external scientists.

Four important training events for the external life science research community took place at HT. These were courses, conferences and workshops in the fields of space biology, omics and image data analysis, including the first EMBO course and the first major international conference (with almost **200** participants) hosted at HT. In total, almost **400** external scientists from national and international institutions attended these events.

In order to encourage mobility and the sharing of expertise, infrastructure and methods with the external research community, in 2024 HT played host to **24** scientific visitors from different research institutes in Italy and abroad.

Another very important project for HT, linked to the goal of offering advanced scientific training to the Italian scientific community, concerns the organisation of mentoring programmes. In particular, in 2022 HT approved its 'Supervision and Mentorship Guidelines'. The document is intended to provide a general picture of the principles and best practices to be followed by Group Leaders and their supervised researchers, as well as by mentors (i.e. the people chosen by the individual researcher who can offer career advice and opportunities to reflect and be challenged, especially with regard to soft skills) and their *mentees*.

A further initiative, closely linked to this strategic objective, is the Early Career Fellowship (ECF) Programme, which was launched as early as 2020 with the first edition of the programme, aimed at supporting the professional growth of talented researchers, helping them to set up their own independent research activity in Italy.

In 2024, activities were further pursued with regard to the ECF programme launched in 2021, which allowed five young researchers returned from abroad to obtain a scholarship worth €200,000 per annum over five years to set up their own research laboratories in institutes throughout the country. In 2022, another two brilliant scientists were added to these first **5** researchers, bringing the total number of ECF fellows supported by HT to seven.

In addition to interactions with the outside world, interactions within HT, particularly within its research groups, are also of great importance. Indeed, HT believes that scientific and social interactions are essential to build a collaborative environment and promote discussion within a research group and/or between members of different teams. In this regard, HT has approved an internal procedure for the organisation and management of *'scientific retreats'*, i.e. off-Campus meetings involving one or more research groups, memb ers of facilities or support units, or an external consultant with expertise in one of the topics being discussed. HT believes that retreats provide an opportunity to discuss science in depth in a more informal setting without distractions and restrictions. Bi-weekly 'chalk talks' to which HT postdocs have access are also regarded as highly relevant, in order to increase opportunities for interaction and exchange with the scientific community.

Nikola Cokorac
PhD Student, Kalebic Group

2.3.4 ENABLING THE EXPLOITATION OF RESEARCH RESULTS AND TECHNOLOGICAL INNOVATION THROUGH TECHNOLOGY TRANSFER

This strategic objective includes the following steps:

- **Signing agreements with external organisations and industries to create economic and social value from research findings;**
- **Developing, filing, registering and protecting patents;**
- **Establishing start-ups and promoting technology transfer;**
- **Providing innovative training and mentoring services to Italian (and international) academia.**

It is evident from many examples in different parts of the world that innovative industrial clusters develop around world-class research centres. To this end, the promotion of university-industry relations, the management of intellectual property issues and the promotion of an entrepreneurial mindset in academia are conditions for a successful technology transfer activity.

Fostering an entrepreneurial mindset in academia is therefore essential and HT is committed to contributing to economic and social progress by turning research results into practical applications, innovative therapies and useful products.

As HT's research activities grow, technology transfer activities will be launched in a structured way to help turn HT scientists' discoveries and inventions into tangible applications and marketable products. The new technologies and methods that might derive from HT's work cover a wide range of life sciences, including diagnostic and therapeutic strategies, enabling technologies, molecular tools and assays, instrumentation and devices, as well as software applications and databases, to be potentially developed in close cooperation with industrial partners from the pharmaceutical, biotechnology, engineering and IT sectors.

HT's strategy of collaborating with industry includes a wide range of possible interactions, ranging from project-based research collaborations to joint training programmes and long-term strategic partnerships in specific research and development areas.

In this context, and also pursuant to Article 49-bis of Decree-Law No. 34 of 19 May 2020, converted with amendments by Law No. 77 of 17 July 2020, in July 2021 HT opened a new facility known as the 'Centre for Innovation and Technology Transfer in the Life Science field' (CITT). The Centre, endowed with adequate funds (see chapter 2.2.1 'Financial Capital' and chapter 5 'Financial statements'), is engaged in promoting innovative processes proposed by public and private entities in the research and innovation system, with a focus on:

- Supporting patenting and maximising the value of intellectual property;
- Promoting collaboration between private entities in the innovation system and national and European research institutes;
- Fostering the dissemination of research findings and knowledge transfer;
- Encouraging research-based collaborations between companies and start-ups for the development of biotechnologies, artificial intelligence technologies for genetic, proteomic and metabolic analyses, technologies for diagnostics, active surveillance, protection of vulnerable individuals and improvement of quality of life.

CITT - 2024 ACTIVITIES AND RESULTS

In 2024, the activities of the Centre for Innovation and Technology Transfer (CITT) were aimed at supporting the technology transfer system in Italy, developing its programme along its three well-established lines of training, networking and international relations, which also includes the study of foreign technology transfer models. In addition to this programme, intensive research work, both through desk analysis and study tours and missions, was carried out on forms of collaborative research between academic and industrial players in the life science sector at European level.

1. **Training**: to support Italian universities and research centres in training Italian students and scientists on the mechanisms for making the most of their discoveries, in 2024 CITT offered a four-day course (held on HT's premises) on the essential tools of technology transfer, attended by **28** scientists and young professionals selected from IRCCSs, universities, Italian and foreign research institutes. The course was organised in cooperation with Netval (National Association of Technology Transfer Operators) and the University Institute of Advanced Studies (IUSS) in Pavia. During the year, three in-depth online workshops were also organised, namely *'To publish or patent: when is the right time?'*, *'What attracts investors?' and 'Innovations in Drug Repurposing and Target Validation'*. These initiatives, focusing on targeted topics, took the shape of lectures held by industry professionals followed by a Q&A to answer participants' doubts and queries.

2. **Networking**: in 2024, CITT continued to contribute to strengthening the network of Italian technology transfer professionals by holding meetings and discussions on topics of common interest. Two meetings were organised in Milan in 2024: the first one, *'Beyond the Industrial Property Code'*, was organised with Italian Tech Alliance to discuss the critical issues and opportunities arising from the reform of the Industrial Property Code in Italy. The second meeting was a corporate venture meeting with guest speaker Fabrizio Conicella, Head of Open Innovation and Competence at Chiesi farmaceutici.

3. **International relations and the study of foreign technology transfer models** took the shape of study tours to encourage interaction between the Italian technology transfer system and that of other European countries, to compare models that might be applied to the Italian System, to learn about funding opportunities provided at European level, and to attract researchers and funds to innovation in our country.

In 2024, study tours were organised in the UK, Germany and Belgium. In the UK, the mission had the following objectives: to learn more about the public-private collaborative research model run by Open Targets and to find out how LifeArc manages the technology transfer of the Laboratory of Molecular Biology, one of the world's leading institutes in the field of molecular biology, whose discoveries have produced 13 Nobel Prize winners, as well as therapies and technologies that have revolutionised medicine.

In Germany, CITT visited the Lead Discovery Center in Dortmund as well as the Max Planck Innovation in Munich with HT's Director, Prof. Marino Zerial. The Max Planck is one of Germany's, and the world's, leading institutions in the field of basic research.

In Belgium, the Brussels South Charleroi Biopark (ULB) and the LRD in KU Leuven were visited. The latter, in particular, is a role model in the field of technology transfer: suffice it to say that KU Leuven's technology transfer revenues amount to around €400m per year, from which approximately one third of the university's salaries are paid.

Also in Belgium, CITT, with Director Marino Zerial and HT Grant Manager Gabriele Ballero, led a delegation of 20 technology transfer officers, knowledge transfer officers, business development unit professionals, to discover the life science transfer chain in the Wallonia region and the KU Leuven technology transfer system (LRD). In Brussels, at the Permanent Representation of Italy to the EU, CITT also organised a workshop on the main tools and measures made available by the EU for research and innovation, with presentations on initiatives such as EIC, EIF, IHI, EISMEA, and others. On this occasion, Prof. Marino Zerial and Fabio Terragni, a member of the HT Management Committee and technology transfer delegate, met representatives of the European Commission, EU Agencies (DG RTD, EIC, JRC, etc.) as well as some MEPs for the first time. During the workshop, the Director presented the Human Technopole Foundation and the National Facilities project, paving the way for future collaborations and exchange opportunities.

4. As regards the **exploration of virtuous models in research and technology transfer**, special attention was given to examining the best public-private collaborative research experiences. The idea is that collaborative research platforms can effectively act as a link between research laboratories and the market, helping researchers transfer their knowledge into technologies that have an impact in society.

   The debate on collaborative research platforms was discussed on two occasions. First and foremost, within the Federchimica Assobiotec Industrial Development Working Group coordinated by Fabio Terragni as of this year. Secondly, during the event, in collaboration with Federchimica Assobiotec and The European House - Ambrosetti (TEHA), entitled '*Unlocking Potential in Life Sciences: Collaborative Research between Academia and Industry in Europe'* that was held in October 2024. The initiative illustrated and discussed three particularly virtuous European models (i.e., LDC Dortmund, IBM Zurich, Open Targets UK) and hosted a panel discussion with some of the key players in the Italian life sciences ecosystem.

   Following the meeting, TEHA was commissioned to investigate European collaborative research models, analyse the Italian situation and examine the views and readiness of leading Italian companies in the life science research sector. This study was presented to a selected group of industrial stakeholders to test their readiness to develop an Italian collaborative research model.

2.3.5 CROSSCUTTING OBJECTIVES

In addition to its four main strategic objectives, the Human Technopole Foundation is committed to pursuing further ancillary and crosscutting objectives that enrich its strategic approach in carrying out its activities. These include:

Scientific reputation and dissemination: strengthening HT's image, credibility and authority by publishing groundbreaking research, participating in international conferences or being awarded prizes of scientific significance;

Partnerships, networking and stakeholder engagement: establishing and maintaining strong relationships with academic institutions, research institutes, government agencies and industry to promote joint projects and exchange scientific knowledge;

Sustainability: implementing sustainable practices in all HT operations, reducing the environmental impact and promoting social responsibility;

Effectiveness and efficiency of processes: optimising internal processes to ensure efficient use of resources and improve the quality of results.

The main activities and results obtained in 2024 for each crosscutting objective are reported below.

SCIENTIFIC REPUTATION AND DISSEMINATION

During 2024, HT joined many initiatives of international scientific significance. In particular, HT scientists attended more than **280** conferences and workshops worldwide, presenting talks and validated posters. In addition, the entire international scientific community had access to seminars held by HT's Group Leaders, as well as to seminars, courses and conferences with international speakers (of the highest level) organised on HT's premises or at other research institutes. As reported in paragraph 2.3.3, HT's scientific staff was also actively involved in external training so as to increase their experience in scientific dissemination.

Also in the course of 2024, HT's researchers received internationally prestigious awards and recognition; for example, HT Director, Prof. Marino Zerial, was elected as a new member of the German Leopoldina National Academy of Sciences (Leopoldina | Home). HT's Director also received the Mercurio Prize 2024 (Mercurio Prize - MERCURIO - Deutsch-Italienische Wirtschaftsvereinigung) in the 'Research and Development' category, as an award for excellence in his research in the field of cell biology. Other important awards were obtained by HT researchers from the Genomic Research Centre - Population programme and from the Genomic Medicine Research Centre.

HT's commitment to science dissemination is translated into its openness to the outside world, through activities designed for non-scientific stakeholders and the general public. The Human Technopole Foundation is constantly active in communication, training and dissemination initiatives, taking a proactive role in promoting public understanding of the value of scientific research and knowledge-based innovation. In this context, HT is committed to fostering an ongoing and constructive dialogue between science and society, which is not limited to the academic dimension, but also extends through targeted outreach initiatives, with the aim of strengthening the link between research and citizens.

For more information on institutional and communication initiatives in 2024, please refer to subchapter 2.2.4 '*Relational Capital*'.

ENVIRONMENTAL, SOCIAL AND ECONOMIC SUSTAINABILITY

The aims of this strategic objective are as follows:

- **ENVIRONMENTAL SUSTAINABILITY**
  Helping to minimise the environmental impact of the MIND site and optimise the environmental efficiency of buildings and laboratories; reducing animal experiments to a minimum.

- **SOCIAL SUSTAINABILITY**
  Promoting gender equality opportunities, improving people's quality of life (health, age, wellbeing), having a positive impact on the area (employment, ancillary activities, etc.), promoting awareness of the importance of science and research within society and the public, becoming a reference player for a new generation of students.

- **ECONOMIC SUSTAINABILITY**
  Attracting investors (including private ones), being resource efficient, ensuring long-term economic-financial balance by recording an operating profit.

Generally speaking, sustainability is an integral part of HT's activities and the achievement of this objective corresponds at the same time with the pursuit of the 17 UN 2030 Agenda Sustainable Development Goals (SDGs).

HT has defined a system of objectives that supplement the results of its activities with awareness of their social, environmental and economic effects. With the adoption of Integrated Reporting, HT launched a process aimed at assessing and investigating the contribution that HT can make to the achievement of the Sustainable Development Goals (SDGs) defined by the government leaders of the UN's 193 Member States.

With special reference to economic sustainability, HT adopts a policy of utmost efficiency in the use of resources, ensuring economic-financial balance with a view to the long-term.
In addition, HT aims to attract further investments, e.g. grants and funds of international scientific importance.

In this respect, in 2024 HT scientists were awarded prestigious grants and scholarships (e.g. from ERC, EC/Horizon, HFSP, EMBO, AIRC, Telethon, Cariplo, etc.), bringing the total amount of external competitive research grants raised by HT to **€26** million at the end of 2024.

Resources are expected to increase further in coming years through new sources of external research funding, for example, from the European Commission, other Agencies or private foundations and non-profit organisations. Moreover, by consolidating activities that maximise the value of research findings, additional funds are expected to contribute to HT's overall budget through contributions from patent licensing and intellectual property revenues (e.g. royalties), as well as from joint programmes with industry.

Please refer to sub-chapter *2.2.1 'Financial Capital'* for details of financing, other than MEF grants, obtained by HT in the course of 2024, whereas, for an in-depth discussion of the sustainability objectives resulting from the identification of the impacts of HT's activities, in particular related to environmental, social and economic aspects, please refer to subchapter *2.4 'Responsible and sustainable approach'*.

PARTNERSHIPS, NETWORKING AND STAKEHOLDER ENGAGEMENT

HT maintains relations with many institutions, organisations, bodies and associations. The maintenance and pr omotion of close ties and open dialogue with such stakeholders contribute to the consolidation of HT as a renowned research centre and hub for the scientific and innovation community and as a strategic project for Italy. Connecting with the scientific community is crucial for HT's external relations, especially when we consider that the challenges posed by contemporary biomedical research are so demanding that no group, not even an institute, can tackle them alone.

Over the next five years, as critical mass is reached in existing and new research areas, HT will continue to seek opportunities for collaboration with the external biomedical and health research community. With the aim of enhancing more translational aspects, HT maintains productive relations both with the Italian Government, its founding Ministries, and with various international, national and local authorities and other relevant (mainly national) associations and representative bodies, also by organising or participating in specific events. Overall, these institutional activities and HT's involvement in given events help to build consensus around the Institute and make decision-makers listen to HT's voice.

The Human Technopole Foundation also participates in institutional activities, events and initiatives, including on sustainability issues, in coordination with its partners in the MIND area (MIND - Milano Innovation District). As part of its institutional and communication activities, HT creates opportunities for the public to learn about and discuss basic research and its impact on national health, the economy and society, e.g. by engaging in proactive media relations to illustrate scientific findings and by promoting public events and initiatives involving stakeholders and the local community.

For instance, in line with this objective, in 2024 HT discussed potential areas of collaboration with many universities, research centres, hospitals and companies engaged in life sciences research both in Italy and abroad. These interactions led to the signing of **14** agreements (MoUs and Research Collaboration Agreements) for new joint projects with scientists from numerous Universities, research hospitals, research institutes and industries worldwide. The universities, research institutes and national research hospitals involved in the above-mentioned collaborative projects include the University of Pavia, the University of Bari, Policlinico San Donato, INMI L. Spallanzani and ASST Niguarda, among others.

Further details on collaborative activities and institutional initiatives can be found in subchapter *2.2.4 'Relational Capital'*.

Marta Nathansohn
Communications Manager

EFFECTIVENESS AND EFFICIENCY OF OPERATIONAL PROCESSES

HT aims to maximise operational effectiveness and efficiency with specific actions both within its Administration and in its science support activities. Specifically, its strategic objectives are as follows:

- **Developing technological and digital processes;**
- **Creating an attractive environment for non-scientific talents/professionals.**

Some of the innovations implemented by HT to improve the efficiency and effectiveness of operational processes in the administrative area are listed below.

DIGITAL TRANSFORMATION

As for digital transformation, HT pursues activities related to a complex process of acquisition of new tools and skills in an administrative digitisation framework aimed at ensuring efficiency in operational processes as well as transparency and integrity of operating and financial data.

In previous years, steps were taken to implement the ERP system provided with a view to covering the operational processes of procurement and administration. The project was extended to cover other areas, such as human resources, project management, warehouse management, asset management, monitoring of the maintenance of technical installations in buildings and of equipment, and optimisation of travel management.

In 2024, a new improvement project, called the Digitisation Programme, was launched to respond to the continuous increase in personnel, collaborations, activities offered and workflows. The aim of the programme is to transform and make key processes more efficient by adopting increasingly advanced technologies.

To date, the Digitisation Programme has been developed around six main projects:

- Development and implementation of the new ERP;
- Asset management;
- Procurement and Supply Chain Management;
- Human Resources Management;
- Travel and mission management;
- Document management.

By integrating and updating major business systems (ERP, HCM, CRM, etc.), HT is able to streamline operations between departments and improve workflow efficiency. This interconnection ensures automatic information flows, reducing the need for manual intervention, minimising human error and ensuring that everyone works with up-to-date and accurate data.
The Digitisation Programme is currently expected to last two years (2025-2027).
The digitisation projects launched in previous years have been almost entirely completed. Some of them were reviewed following the launch of the new digitisation programme mentioned above.

PROJECT MANAGEMENT

In 2021 HT launched a structured **Project Management** scheme, with the support of the **Project Management Office (PMO)**, to optimise project planning, monitoring and control, particularly in administrative and digital areas. This is designed to ensure project effectiveness and efficiency, in accordance with the relevant timelines, costs and resources.

In 2022 HT also completed a project dedicated to the dissemination of a project management culture and the adoption of uniform methods and tools. The **Status Reporting** process was introduced for the periodic monitoring of selected projects in terms of resource optimisation, risk and cost containment.

In 2024, the process was further strengthened with more standardised tools, greater real-time visibility for stakeholders and the active monitoring of **13 projects**, including cross-area. The system supports the activities of **Internal Audit & Compliance** and is guided by an internal **handbook** available to all HT personnel.

HELP DESK AND TICKETING SYSTEM

In order to ensure a high level of internal assistance in resolving 'incidents' and to improve collaboration between HT's different areas, an internal service called 'Service Now' was introduced in 2022. It is a ticketing and booking system, used by all areas and departments of HT, to request assistance related to ICT & Digitisation, Campus Development & Facility Management, Human Resources, Procurement. In particular, support requests from the Campus Development & Facility Management area may concern, for example, issues related to buildings, furniture, failure of equipment or freezers or machinery installed in laboratories. Moreover, during 2022, the Campus Development & Facility Management area implemented and operated a monitoring system called 'Mean Operating Time'. The system is used to analyse and monitor the activities carried out to resolve incidents handled during the year. This monitoring indicates that in 2024 **388** incidents were found, and were resolved in more than 97% of cases by the end of the year.

Service Now is used in the Human Resources area for queries related to employment contracts, guest house services, childcare services for employees' children, wage slip information, relocation services, information and assistance with social security, taxation and welfare, etc., or to solve problems related to the ICT & Digitisation area (hardware, software, cyber security, databases, data management, etc.). In 2024 Service Now was extended to services in the finance area (e.g. budget control, accounting and tax information, insurance contract management, etc.).

PREDICTIVE PLANT MAINTENANCE SYSTEM

With the help of an external provider, daily checklists have been implemented to intensify predictive maintenance on certain focal points of buildings. Expert maintenance services are also provided by authorised CATs (Technical Assistance Centres), ensuring both quick repairs in case of failures and continuous assistance to plant operators for ordinary adjustments and support activities.

PERIMETER SECURITY

In view of the increase in the number of people working at HT, the night-time opening of laboratories and the extension of different Campus buildings, an electronic access tracking system has been implemented to ensure personal safety. As of June 2022, everyone accessing HT premises must use a badge that automatically opens doors in all buildings. The automatic system records entry so that security staff know how many people are in the buildings at any given time and can handle emergencies effectively.

MANAGEMENT CONTROL MODEL

Achieving efficiency and effectiveness in operational processes also requires accurate project and activity cost monitoring, thus ensuring accurate and comprehensive reporting of the resources used. In this regard, in 2021 HT launched a process for the implementation and review of its management control model.

HT's new control model, which was approved in 2023, considers all cost reporting requirements for the activities carried out, consistent with HT's reporting obligations towards its financial backers.

As stated in subchapter 2.2.1. of *'Financial Capital'*, we should distinguish between:

- **Founding Ministries (Economy and Finance, University and Research, Health)** that provide annual funding under Law 232/2016 to support the creation of a scientific and research infrastructure (**Agreement**);
- **Ministry of Economy and Finance (MEF)**, that provides annual funding pursuant to Art. 49-bis, Decree Law 19 May 2020, No. 34 (Recovery Decree), converted into law by Art. 1, paragraph 1, Law No. 77 of 17 July 2020 (**CITT** – Centre for Innovation and Technology Transfer in the Life Science Field);
- **Other entities**, that fund individual scientific research projects after taking part in specific calls for proposals (e.g. **EU/grants, other contributions**).

Technically speaking, the management control model is a set of activities and tools used to check whether corporate management is in line with the objectives set out in the Strategic Plan and the Annual Budget and is cost-effective.

The model is part of the 'Human Technopole Foundation system' regulating the operational tools and processes used to pursue corporate targets, in compliance with the organisational structure.

HT's control model is part of a general framework that includes:

- **Value Creation Model**, i.e. the set of strategic choices aimed at supporting sustainable growth over time in order to create value across the board for all HT's stakeholders;
- **Organisation and Processes**, i.e. the set of interrelations generated between production cycle processes (e.g. supply planning, sourcing & procurement, logistics) and economic-financial processes (e.g. Finance) that lead to efficient operational processes;
- **Information System**, i.e. the set of people, equipment, applications and procedures that enable an organisation to obtain the information needed to make appropriate decisions.

The control model thus supports value creation within the scientific research activities in which the Human Technopole Foundation operates whilst pursuing its strategic objectives.

As described in the section on the value creation model, **INPUTS** differ according to the type of capital, which may be:

- **Financial**, i.e. financial resources deriving from 'MEF' grants (Agreement, South Building and CITT grants) and external grants, both institutional and scientific (e.g. EU);
- **Human**, i.e. skills, experience and excellence of scientific and non-scientific staff;
- **Infrastructural**, i.e. assets owned by HT, facilities, infrastructure and services;
- **Relational**, i.e. relations with the stakeholder group and collaboration with research centres and universities;
- **Intellectual**, i.e. the wealth of knowledge and expertise of HT's scientific research.

OUTPUTS sare designed to achieve strategic objectives and are of various types:

- Innovative approaches for personalised and preventive medicine;
- Operating scientific services and facilities to be made available to the scientific community;
- Scientific discoveries aimed at developing new therapeutic strategies for diseases;
- Development and career opportunities for the next generation of scientists;
- Awareness of the importance of science and scientific literacy;
- Attraction of further funding, including from private sources;
- Scientific collaboration, institutional events and initiatives of great relevance.

The aforementioned outputs, within the control model, are then split into **five** separate **levels**:

- **Activity type (1st level)**, c), i.e. institutional or commercial activity;
- **Business Unit - 'BU' (2nd level)**, i.e. Research Centres and National Facilities;
- **Funding type (3rd level),** tincluding: MEF grants (Direct research, Agreement and South Building grants), CITT grant, EU grants and other grants;
- **Grant details (4th level)**, including: HT share, NF share, 'extra MEF' grants";
- **Research Projects and Cost Centres (5th level)**, with details of individual scientific research and institutional projects funded by 'extra MEF' grants and internal cost centres of the Human Technopole Foundation.

INPUT

Financial Capital — 'MEF' grants, External funds

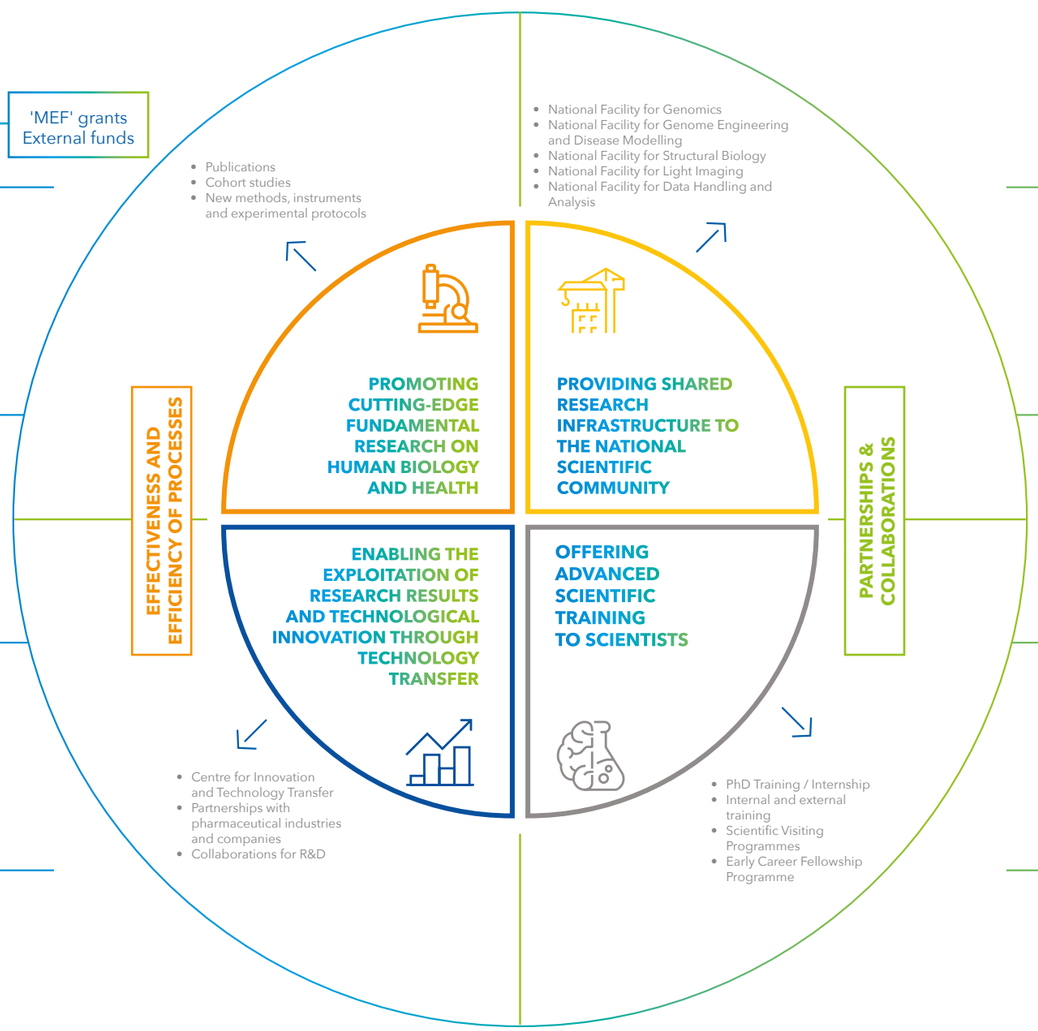
Human Capital

Infrastructural Capital

Relational Capital

Intellectual Capital

SUSTAINABILITY
- Work-life balance
- Diversity and equal opportunities
- Environmental sustainability



SCIENTIFIC REPUTATION
- Awards
- Events
- Conferences
- Conventions
- Scientific initiatives

OUTPUT

Innovative approaches for personalised and preventive medicine

Awareness and dissemination of science

Scientific services and facilities for the scientific community

Development and career opportunities

Scientific discoveries to develop new therapies

Attraction of further funding, including from private sources

Scientific collaboration, events and institutional initiatives

1st LEVEL	2nd LEVEL	3nd LEVEL	4nd LEVEL	5nd LEVEL	
Activity type	**Profit Centres/BUs**	**Funding type**	**Grant details**	**Projects**	**Cost centre**
INSTITUTIONAL ACTIVITY	RESEARCH CENTRES	MEF annual grant for HT direct activities and NFs	MEF HT		Cost centre A, B, C
			MEF PN		
		MEF South Building grants	South Building		Cost centre A, B, C
	NATIONAL FACILITIES	MEF CITT	...		Cost centre A, B, C
COMMERCIAL ACTIVITY		EU grants	ERC consolidator (Radials)	ERC consolidator (Radials)	Cost centre A, B, C
			ERC Cilia	ERC Cilia	
			Horizon Programmes	Horizon Programmes	
			ERC Thyromol	ERC Thyromol	
			Neurocov	Neurocov	
		Other scientific research grants	AIRC Foundation (MFAG - ASIM)	AIRC Foundation (MFAG - ASIM)	Cost centre A, B, C
			EMBO fellowship	EMBO fellowship	

STATUTORY FINANCIAL STATEMENTS, PUBLIC ACCOUNTS STATEMENTS (SIOPE) AND INTEGRATED REPORT

2.4 Responsible and sustainable approach

In 2015, UN Member States adopted the 2030 Agenda for Sustainable Development, which offers a shared vision and roadmap for peace and prosperity for people and the planet, both now and into the future. At the heart of the 2030 Agenda are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership.

These countries recognize that ending poverty and other deprivations (e.g. violence, inequalities, malnutrition, precarious employment, limited access to health services, etc.) requires the adoption of strategies that improve health and education, reduce inequalities and stimulate economic growth, while tackling climate change and working to preserve oceans and forests (**United Nations website** - UN The New 2030 Agenda for Sustainable Development).

The 17 Sustainable Development Goals are represented below

As described in subchapter 2.1 'Stakeholder engagement and the materiality matrix', HT conducted a materiality assessment in accordance with the new European CSRD (Corporate Sustainability Reporting Directive), adopting the concept of 'Double Materiality'. The analysis of the Double Materiality results revealed **13** ESG topics that are relevant to the Human Technopole Foundation, for which detailed information is provided in terms of metrics, policies and management methods. Each material topic includes a set of impacts, risks and opportunities (IROs), its connection to one or more HT strategic goals, appropriately identified with relevant symbols, and to one or more of the UN 2030 Agenda's Sustainable Development Goals. In addition, each section identifies the relevant GRIs and topics covered.

GRI

2.4.1 ENERGY EFFICIENCY AND RESPONSIBLE CONSUMPTION

GRI 302-1; GRI 302-3; GRI 303-3; GRI 303-4; GRI 305-1; GRI 305-2; GRI 305-3[8]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Energy efficiency and responsible consumption'.

STRATEGIC OBJECTIVE			
TOPIC DESCRIPTION	**IMPACT**	**RISK**	**OPPORTUNITY**
Energy efficiency and responsible consumption reduce carbon emissions and environmental pollution, contributing to an environmentally sustainable environment through improved energy efficiency in research activities and facilities.	**NEGATIVE IMPACT:** **High costs**: Failure to invest in energy efficiency might lead to higher costs for energy supply, reducing the resources available for scientific research. **POSITIVE IMPACT:** **Emission reduction:** Using energy from renewable sources can reduce HT's climate-altering emissions.	**Dependence on non-sustainable energy suppliers**: despite efforts to improve energy efficiency, HT might remain dependent on energy suppliers that use non-renewable sources. This can limit the effectiveness of sustainability initiatives and keep carbon emissions high.	**Adoption of renewable energies**: Investing in energy efficiency can further reduce the environmental impact of research activities while also contribute to the reduction of long-term energy costs and the improvement of HT's public image. This approach also entails the possibility of accessing specific financing schemes.

STRATEGIC OBJECTIVE			
Educating scientists on how to reduce energy consumption in laboratories and use resources responsibly, contributing to a culture of **energy efficiency and responsible consumption.**	**NEGATIVE IMPACT:** **High energy consumption**: If advanced scientific training does not include programmes on how to reduce energy consumption in laboratories, scientists may continue to use resources inefficiently, incurring higher costs. This can increase energy consumption and carbon emissions and contribute to climate change. **POSITIVE IMPACT:** **Carbon emission reduction**: educating scientists on how to reduce energy consumption and use resources responsibly can lead to a significant reduction in carbon emissions. This helps mitigate climate change and promotes environmental sustainability.	**High energy costs**: Energy inefficiency can increase energy costs for laboratories and research institutions. This may reduce the funds available for other research and development activities, limiting scientific progress.	**Innovation in sustainable technologies**: Implementing energy efficiency programmes can foster innovation in sustainable technologies. This not only reduces energy costs, but also positions the company as a leader in sustainability, attracting investments and enhancing its reputation.

[8] For details see chapter 4.3. GRI Content Index.

The Human Technopole Foundation is committed to promoting sustainable practices geared towards energy efficiency and responsible consumption management. In line with ESG principles and environmental sustainability goals, HT takes measures to reduce the energy impact of its activities by:

- optimising plant systems and working environments;
- constantly monitoring consumption and adopting high-efficiency technologies;
- ensuring the rational use of energy resources, with a focus on reducing waste;
- promoting the culture of sustainability in-house, involving staff in conscious behaviour.

These actions are part of a constant improvement project aimed at reducing the Institute's environmental footprint and contributing to the energy transition.

ENERGY MANAGER

One of the activities undertaken with respect to the material topic in question is the appointment of an Energy Manager.

The Energy Manager, a position formally introduced in Italy by Article 19 of Law no. 10 of 9 January 1991, is responsible for energy conservation and rational use by energy-intensive consumers, which are required to appoint such figure every year. The Energy Manager's duties include:

- energy consumption data collection;
- energy consumption data analysis;
- energy budget preparation;
- promotion of efficient energy use within his organisation.

The Energy Manager supports management bodies with regard to the best use of energy within the organisation, performing facility management, end-user awareness raising and energy efficiency improvements.
The required nature of the Energy Manager's appointment depends on the volume of TOE (Tonnes of Oil Equivalent), i.e. the unit of measurement for energy budgets (local or corporate), expressing primary or end-use energy consumption, with a single unit for each energy carrier (electricity, gas, oil, etc.). In the industrial sector, the appointment is required if consumption exceeds 10,000 TOE/year, while in other sectors this figure is 1,000 TOE/year. In general, when assessing whether the obligation thresholds have been reached, all energy handled by a company/entity is to be taken into account, regardless of whether it is paid for or free (e.g. renewables used for electricity generation), refers to owned or leased property, is purchased directly or under energy service contracts. If the threshold is not reached, an Energy Manager may still be appointed, especially to demonstrate sensitivity to the issues of rational energy use and sustainability.

As far as HT is concerned, an internal Energy Manager was appointed in 2022 for the year 2023, who started to arrange for several energy efficiency activities to be implemented in the near future. In 2024, the Energy Manager position was outsourced; in particular, HT planned a number of activities and areas of intervention, including the implementation of a new energy monitoring system, the preparation of an energy diagnosis under Legislative Decree 141/2016, consumption containment management activities to be agreed with plant operators, the administrative management of photovoltaic plants, generator sets and other electricity production points, efficiency and decarbonisation solutions, and periodic consumption management audits.

With regard to energy consumption data collection, at the operating level, the electrical energy analysers on Campus allow viewing directly from the interface of the switchboard device.

The analysers can record both instantaneous consumption and total energy consumption for each HT building. The existing installations are without remote connection, with the exception of the North Pavilion building where it is already configured on the Building Management System (BMS). Current monitoring involves the monthly collection of displayed data and their storage by the Campus Development & Facility Management area on HT's SharePoint for subsequent analysis and modelling. Although this activity temporarily makes up for an effective energy monitoring system, it is essential to collect a significant amount of energy data, which must necessarily include seasonal changes, the completion of scientific installations and the actual use of all utilities.

In 2024, consumption data were also collected by the maintainer directly from the available reading equipment; yet, consumption certification, i.e. the possibility of verifying how much a building or, in more detail, a facility or even an individual research laboratory consumes, can only take place upon installation of a power-metering system.
In any case, 2024 was a further construction year for the HT Campus.

INFORMATION ON ELECTRICITY CONSUMPTION IN 2024

Below are some tables showing electricity consumption for the years 2022, 2023 and 2024, together with estimates of the energy potentially produced by the soon-to-be installed photovoltaic systems on the HT Campus buildings.

In 2024, the electricity consumed from 1 January to 31 October did not come from renewable sources. This was due to the expiry in October 2023 of the Consip 2021 agreement which granted HT the 'green option' ensuring that 100% of energy came from renewable sources.

In November 2024, HT joined the CONSIP EE21 agreement, which guarantees the 100% sourcing of electricity from renewable sources. However, due to an administrative glitch, the guarantees of origin for the above-mentioned months were not issued by reason of HT's entry into the safeguard scheme in order to guarantee the continuity of electricity supply. HT challenged its entry into the safeguard scheme, but as of the date of this Annual Report, the issue has not yet been resolved. Therefore, for prudential reasons, consumption and avoided emissions related to the use of electricity from renewable sources have not been reported.

Electricity consumption in 2022, 2023 and 2024:

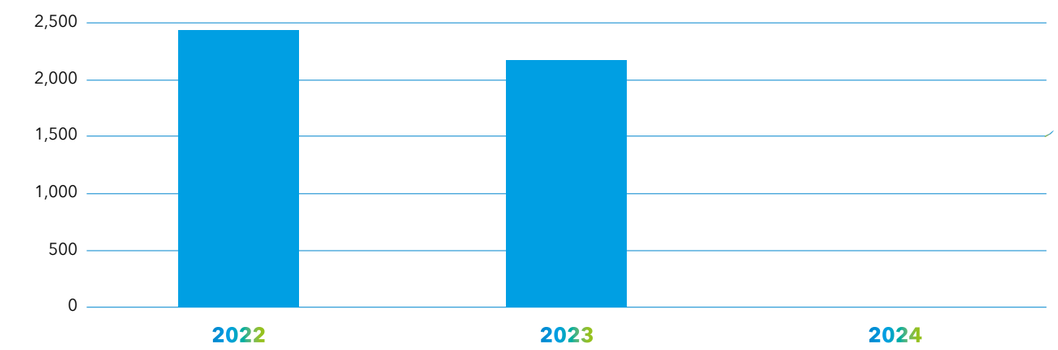
ENERGY CONSUMPTION (GJ)*

* The table uses the following conversion factor: kWh to GJ.

Energy intensity calculated for 2024 as the ratio of energy consumed by HT to the net area in m^2 amounts to: 0.5018 (MWh/m^2 ratio), i.e. 1.80 GJ/m^2.

The diagram below shows **emission savings arising from the use of renewable electricity**.

Tonnes of CO_2eq SAVED by renewable electricity consumption



Estimated energy to be produced by the photovoltaic plants due to come into service shortly:

ENERGY FROM PHOTOVOLTAIC PLANTS

BUILDING	GJ PER YEAR ESTIMATED FOR 2025
Palazzo Italia	268
North Pavilion	47
South Pavilion	123
Incubator Labs	144
TOTAL	**582**

The Giga Joule[9] equivalent of the energy produced by gas oil consumption to ensure the ongoing operation of facilities in the event of a breakdown is also shown. Consumption is mainly due to routine checks (twice weekly) and checks every two months whilst loaded:

ENERGY GENERATED BY E.G. IN 2024

GJ	**123.60**

In 2024, direct GhG emissions from gas oil consumption amounted to 8.5435 tons of CO_2eq.

[9] The calculation was performed using the DEFRA 2024 conversion factor (10.098) to convert litres into kWh; subsequently, the value obtained was multiplied by 3.6×10^{-3} in order to express it in gigajoules (GJ).

INFORMATION WATER CONSUMPTION IN 2024

With regard to water consumption, please find below the results of the calculations based on HT Campus staff's pro-capita consumption. It should be noted that the withdrawal/consumption data included in the following table (GRI 303-4) for 2024, are calculated on the basis of the data measured by the meters in the period after their installation (estimated for the first 4 months of the year due to a meter blockage). Water discharge data entered in table GRI 303-3 are taken as being total estimated consumption (9.53 MI) less the amount sent for disposal as waste.

The tables under GRI 303-3 / 303-4 with comparisons to previous years are shown below

GRI 303-3

THIRD-PARTY WATER WITHDRAWALS (groundwater suppliers in ML)	2022 TOTAL	2022 OF WHICH: FROM WATER-STRESSED AREAS	2023* TOTAL	2023* OF WHICH: FROM WATER-STRESSED AREAS	2024* TOTAL	2024* OF WHICH: FROM WATER-STRESSED AREAS
Third-party water suppliers (groundwater)	**3.01**	**3.01**	**8.44**	**8.44**	**9.53**	**9.53**
Of which: Fresh water (≤1,000 mg/l total dissolved solids)	3.01	3.01	8.44	8.44	9.53	9.53
Of which: Other water types (>1,000 mg/l total dissolved solids)						

*for 2023 and 2024, water stress is considered medium/low (source: Acqueduct Water Risk Atlas)

GRI 303-4

WATER DISCHARGE BY SOURCE AND BY TYPE (in megalitres)	2022 TOTAL	2022 OF WHICH: FROM WATER-STRESSED AREAS	2023* TOTAL	2023* OF WHICH: FROM WATER-STRESSED AREAS	2024* TOTAL	2024* OF WHICH: FROM WATER-STRESSED AREAS
Third-party water suppliers	**3.001**	**3.001**	**8.43**	**8.43**	**9.52**	**9.52**
Of which: Fresh water (≤1,000 mg/l total dissolved solids)	3.001	3.001	8.433	8.433	9.523	9.523
TOTAL WATER DISCHARGE (in megalitres)	**3.00**	**3.00**	**8.43**	**8.43**	**9.52**	**9.52**

*for 2023 and 2024, water stress is considered medium/low (source: Acqueduct Water Risk Atlas)

As for waste transport management, following an assessment of the carriage of dangerous goods by road and the type of waste produced, the Human Technopole Foundation appointed a qualified professional as transport safety consultant.

The aim is to help ensure safety during carriage in compliance with the requirements of the ADR, i.e. the European Agreement concerning the International Carriage of Dangerous Goods by Road.

The following information is provided with regard to the impacts of waste transport (scope 3) on atmospheric emissions:

- KPI = tons CO_2 / tons transported waste;
- CO_2 consumed = litres consumed * emission coefficient;
- Emission coefficients kg CO_2 / litres Diesel.

HT acknowledges the growing importance of reporting on indirect emissions related to its activities, known as Scope 3.

In this respect, an initial monitoring and reporting phase has already started, which currently covers Category 5 - Waste generated by operations, in line with the GHG Protocol guidelines. In 2024, the KPI 'tons of CO_2eq. per ton of transported waste' was 0.23, while the total tons of CO_2 eq. emitted for waste transport were 6.6. HT is considering progressively enhancing its Scope 3 emissions reporting by implementing a structured process to include additional relevant categories in the coming years, in order to ensure an increasingly comprehensive and transparent representation of its environmental impact. The emission factors used for Scope 3 are as follows: source Ademe, combustion factor 0.082.

Details of emissions calculated in accordance with GRI 305 are given below.

EMISSIONS	UNIT OF MEASUREMENT	2022	2023	2024
SCOPE 1	tons CO_2 eq	6.65	385.66	715.6
SCOPE 2 (location-based)	tons CO_2 eq	2,623.43	2,681.45	4,428.8
SCOPE 2 (market-based)	tons CO_2 eq	280.04	755.32	5,075.4

The emission factors used for Scope 1 are as follows:

- diesel: source Defra 2024, combustion factor 2.51279;
- f-gas: source IPCC, combustion factor 2088 and 675.

The emission factors used for Scope 2 are as follows:

- location based: source Ispra 2022, combustion factor 0.4368;
- market based: source AIB, combustion factor 0.500565641.

DETAILS OF ENVIRONMENTAL NON-COMPLIANCE MANAGEMENT

The use of heat pumps for both summer and winter air-conditioning is a more sustainable solution than other types of thermal systems as it involves the use of electricity mainly from renewable sources and avoids fossil fuel combustion. However, such installations pose an environmental risk due to the possible emission of gases used in the refrigeration cycle, usually fluorinated gases (HFCs), classified as greenhouse gases (GHGs).
In 2024, twelve cases of greenhouse gas emissions were recorded in relation to seven air-conditioning systems. In two cases, the cause was the breakage of system components resulting in significant gas leaks; in both cases, the system was repaired and subsequently refilled with virgin gas. In the other cases, regular inspections allowed for the detection of small leaks and thus the preventive recovery of gas before larger leaks occurred, thus helping to mitigate the potential environmental impact. The gas released in these twelve cases was R410A (GWP 2088) with a total of 706 Ton CO2 equivalent and R32 (GWP 675) with a total of 1 Ton CO2 equivalent. The causes of these non-compliances were neither negligent maintenance, which is carried out regularly, nor manufacturing defects. The corrective action taken was the repair of leaks, making improvements where possible, and the intensification of regular inspections, at shorter intervals for the most critical plants with significant gas content.

GRI

2.4.2. CYBERSECURITY

GRI 3-3[10]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Cybersecurity'.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Cybersecurity ensures the protection of research data and sensitive information from cyber threats, keeping internal and external confidence high and preserving the security of scientific information.	**NEGATIVE IMPACT:** **Damage to or loss of research data**: inadequately implemented cybersecurity can foster cyber attacks, compromising research projects and reducing public or partner confidence in HT's ability to protect information. In addition, cyber attacks can disrupt research activities, delaying projects and publications, with potential impacts on public health. **POSITIVE IMPACT:** **Research data protection**: cybersecurity ensures the protection of research data and sensitive information from cyber threats. This keeps confidence high and ensures the security of scientific information, guaranteeing that data collected and analysed are accurate and not compromised, and complying with data protection and data management agreements with research collaborators. A secure environment enables researchers to work with greater peace of mind, focusing on innovation and scientific progress.	**Risk of Security breaches**: despite security measures, there is always a risk of computer breaches. Data breaches may reduce data quality, forcing restoration activities, damaging HT's reputation and leading to possible financial losses. This risk can have a negative external impact, as loss of data can negatively affect public and stakeholder confidence, as well as potentially expose the personal data of study participants.	**Technological innovation**: investing in cybersecurity can stimulate technological innovation. Organisations developing and implementing advanced security solutions can improve their operational efficiency and attract collaborations with other research institutions. This has a positive external impact, as technological innovations can be shared and adopted by other organisations, improving the overall security of the scientific research sector. In addition, this can have a positive reputational impact on HT, which can prove to be a successful partner for new scientific collaborations.

[10]For details see chapter 4.3. GRI Content Index.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Cybersecurity is essential to protect research infrastructures and sensitive data from cyber threats, ensuring a secure environment that preserves the scientific community's confidence.	**NEGATIVE IMPACT:** **Disruption of research activities**: Despite the efforts made to ensure cyber security, research infrastructures can be vulnerable to cyber attacks. A successful cyber attack can cause significant disruptions in research activities, delaying projects and compromising business continuity. This can have direct negative effects on the productivity of researchers and on research quality. **POSITIVE IMPACT:** **Protection of sensitive data**: Implementing robust cybersecurity measures protects research infrastructures and sensitive data from cyber threats. This ensures a safe environment for researchers and preserves the scientific community's confidence. Effective data protection helps maintain research integrity and prevent the loss or theft of critical information.	**Data breaches**: Despite the implementation of security measures, data breaches can still occur. The compromise of sensitive data can have legal consequences, damage HT's reputation and jeopardise scientific community and partner confidence.	**Innovation in IT security**: Investing in advanced cybersecurity technologies and developing innovative solutions can improve the protection of research infrastructures. Furthermore, collaborating with cybersecurity experts can lead to innovations and improvements in security practices, benefiting the entire scientific community.

STRATEGIC OBJECTIVE

Robust **cybersecurity** ensures that transferred technologies are secure and that confidential information remains protected. Protecting technological innovations and sensitive data during the transfer process is crucial in order to prevent intellectual property theft and other cyber threats.	**NEGATIVE IMPACT:** **Theft of intellectual property:** Inadequate cybersecurity can result in intellectual property being stolen during technology transfers. This not only undermines technological innovations, but can also damage HT's competitiveness and stakeholder confidence. **POSITIVE IMPACT:** **Protection of innovations:** Robust cybersecurity ensures that transferred technologies are secure and that confidential information remains protected. This protects technological innovations and sensitive data, preventing intellectual property theft and other cyber threats.	**Legal sanctions and reputational damage:** Intellectual property theft and data breaches can entail legal sanctions and significant reputational damage. High fines may be applied and stakeholder confidence may be compromised.	**Information security leadership:** Implementing robust cybersecurity can position HT as a cybersecurity leader. This not only enhances its reputation, but also creates opportunities for new collaborations and partnerships, to attract talent and investment and to promote a positive corporate culture.

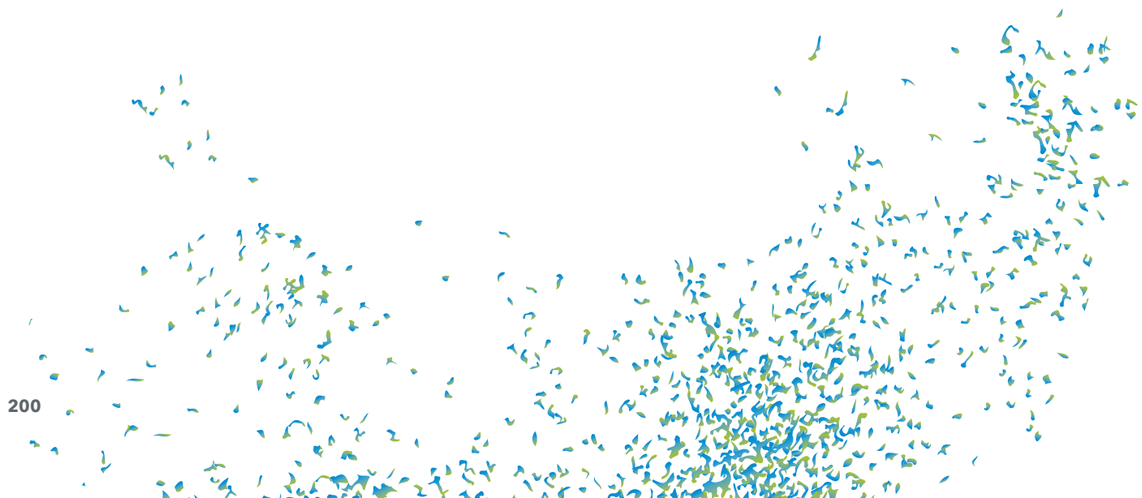
IT SECURITY INITIATIVES AT HT

The processing of personal data as a data controller, joint controller or processor is of particular importance. In this context, HT adopted in 2022 a new regulation on the data protection organisation and management model to comply with GDPR 2016/679. The regulation is designed to ensure compliance with the obligations imposed by law, by defining internal organisation and data protection policies. The establishment of an efficient governance system for the processing of personal data is indeed necessary to ensure compliance of HT's work.

The regulation plays a crucial role in mitigating cyber risks, serving as an essential element in HT's accountability. In fact, IT security is a fundamental pillar for the operational sustainability of the Human Technopole Foundation, ensuring the protection of sensitive data and business continuity. The regulation also lays down the rules to be complied with by its recipients when processing personal data. In addition to the regulation, additional instructions may be given to employees and/or collaborators, as well as specific organisational acts and guidelines on the processing of personal data during specific activities, such as scientific research. These measures contribute to a secure and sustainable environment where data protection and cybersecurity are part of the corporate culture.

HT has always paid special attention to IT security. For example, since 2023 the ICT area has been investing in corporate IT security solutions designed to prevent, detect, investigate and respond to advanced cyber threats. The ICT area has also implemented a set of internal procedures and guidelines aimed at defining behavioural standards and operating methods for access to IT systems and resources, for the management of Internet browsing and for the use of e-mail by all staff and any authorised provider of services or activities on behalf of or at HT's structures, including under remote working arrangements.

During 2024, the ICT area adopted a 'threat intelligence' platform and, with the help of external providers, conducted a 'vulnerability assessment' of HT's public addresses and wi-fi network. An internal cyber security awareness campaign was also launched with 'Cyber Guru', a state-of-the-art solution designed to improve employee awareness and behaviour. The training programmes offered by Cyber Guru enable participants to learn effective techniques to detect phishing emails and fake news, recognise emerging risks from smart home devices, and adopt best practices for password security and social media browsing. In addition, during 2024, HT further took steps to be compliant with the latest European regulations and directives on cybersecurity.



GRI

2.4.3. HEALTH AND SAFETY

GRI 403-5; GRI 403-8; GRI 403-9[11]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Health and safety'.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
The **health and safety** of researchers and study participants is fundamental to conducting ethical and responsible research.	**NEGATIVE IMPACT:** **Work-related injuries (including biohazard):** the lack of risk assessment, development and compliance with occupational health and safety procedures can not only result in occupational injuries or illnesses for employees, but also jeopardise the continuity of research activities ('business continuity'). **POSITIVE IMPACT:** **Safe working environment:** ensuring the health and safety of researchers creates a safe and more productive working environment. This not only protects the well-being of the people involved but also increases the quality of research as it reduces the risk of accidents and illnesses that might compromise studies/projects.	**Regulatory non-compliance:** if the research institute fails to maintain compliance with health and safety regulations, it might face criminal and administrative sanctions and reputational damage.	**Dissemination of knowledge:** promoting health and safety in laboratories and research locations can become an example of best practice (e.g. obtaining ISO certifications). These practices can be disseminated, enhancing HT's reputation and stimulating further innovations in the field of occupational safety.

STRATEGIC OBJECTIVE

The **health and safety** of researchers and study participants includes the implementation of strict safety protocols and the availability of appropriately safe equipment.	**NEGATIVE IMPACT:** **Work-related injuries (including biohazard):** the lack of risk assessment, development and compliance with occupational health and safety procedures can result in occupational injuries or illnesses for employees. **POSITIVE IMPACT:** **Health and safety protection:** implementing policies, regulations and protocols ensures employee safety at work.	**Risk of visitor injuries:** the construction and maintenance of research facilities entails access by external personnel who, if not subject to adequate checks with regard to regulatory safety requirements, may cause accidents/injuries, damaging the company's image and exposing it to likely penalties.	**Innovation in safety-related practices:** investing in innovative health and safety practices can significantly improve the protection of researchers. Furthermore, fostering a safety culture can improve HT's reputation and attract talent and new opportunities for collaboration.

[11]For details see chapter 4.3. GRI Content Index.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Health and safety is fundamental to training, since strict protocols allow scientists to work in safe environments, reducing the risk of accidents and promoting their well-being.	**NEGATIVE IMPACT:** **Inadequate training:** failure to provide adequate health and safety training can increase the risk of work-related accidents. If researchers are not sufficiently trained to handle emergency situations or to follow safety protocols correctly, accidents can occur that put their health at risk as well as compromise HT's reputation. **POSITIVE IMPACT:** **Improving employee well-being:** offering advanced scientific training that includes rigorous health and safety protocols improves the well-being of researchers. A safe working environment reduces the risk of accidents and injuries, increasing productivity and job satisfaction.	**Regulatory non-compliance:** if the research institute fails to maintain compliance with health and safety regulations, it might face criminal and administrative sanctions and reputational damage.	**Leadership in safety:** Implementing strict health and safety protocols can position HT as a leader in this field. This aspect not only enhances its reputation, but also creates opportunities for new collaborations and partnerships, attracts talent and investment and helps promote a positive corporate culture.

STRATEGIC OBJECTIVE

Ensuring that transferred technologies are safe for human use, including risk assessments and **health and safety protocols** for the implementation of new technologies.	**NEGATIVE IMPACT:** **Health and safety risks:** if transferred technologies do not include adequate risk assessments and health and safety protocols, they may pose a hazard to end users. This can cause accidents, occupational diseases and physical harm, undermining public and stakeholder confidence. **POSITIVE IMPACT:** **Health and safety protection:** ensuring that transferred technologies are safe for human use, including risk assessments and health and safety protocols, ensures a safe working environment and protects end users. This increases stakeholder confidence and promotes the adoption of new technologies.	**Legal sanctions and reputational damage:** lack of health and safety protocols can lead to legal sanctions and significant reputational damage. High fines may be applied and stakeholder confidence may be compromised**.**	**Leadership in safety:** implementing strict health and safety protocols can position HT as a leader in safety. This not only enhances its reputation, but also creates opportunities for new collaborations and partnerships, attracts attract talent and investment and promotes a positive corporate culture.

HEALTH AND SAFETY OF HT EMPLOYEES

HT remains committed to the implementation of a Health, Safety and Environment policy, integrated in its Strategic Plan. A central role in this respect is played by the HSE function, which reports directly to the Administrative Directorate.

HT has defined ways to improve occupational health and safety, prevent environmental pollution, eliminate hazards and minimise health risks. This concrete contribution is an integral part of its Organisational and Crime Prevention Model, aimed at protecting the entity and excluding its liability. With the establishment of the HSE area, responsibilities and activities are outlined in the HSE (Health, Safety and Environment) Regulation.

Moreover, to ensure the operation and performance of its institutional tasks, HT has defined responsibilities for the management of occupational health and safety (Employer, Prevention and Protection Manager, and Prevention and Protection Service) in compliance with Legislative Decree no. 81/2008 as amended and current environmental legislation (Environmental Representative), in accordance with Legislative Decree no. 152/2006 as amended.

The HSE area, in support of the Employer and the Environmental Manager of HT, is therefore responsible for:

- the preliminary and systematic assessment of context-related risks and opportunities, occupational health and safety risks (Risk Assessment Document), environmental impacts/risks (Environmental Analysis) related to HT's processes and activities;
- the definition and implementation of verification activities and internal controls;
- the periodic evaluation of HSE requirements in order to ensure the Human Technopole Foundation's compliance with the law;
- the identification of training needs, the planning and disclosure of information, staff education and training;
- HSE emergency management;
- the periodic meeting required by Article 35 of Legislative Decree 81/08 as an opportunity to review performance of the Prevention and Protection Service (a special working group regulated by Article 2, paragraph 1, letter I) of Legislative Decree 81).

INFORMATION PERTAINING TO EMPLOYEE HEALTH AND SAFETY RISKS IN 2024

No occupational accidents that caused the death of any registered employee occurred in 2024. During the year, by implementing a system for the collection of reports, the HSE area recorded and promptly managed:

- **0** injuries at HT during the performance of employees' duties;
- **2** injuries in the outdoor areas of HT, occurred not during the performance of employees' duties (commuting injury) and **1** inside the HT Campus;
- **12** minor injuries occurred at HT during the performance of employees' duties;
- **10** near misses.

During the financial year 2024, no occupational illnesses involving employees or former employees were claimed, for which HT was declared liable.

Furthermore, during the same period, HT launched significant initiatives to improve staff safety:

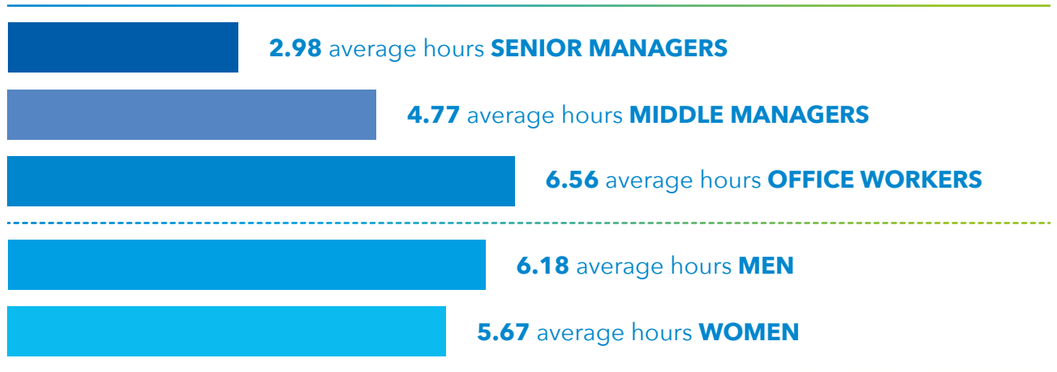
1	The assessment of occupational health and safety risks was conducted by the HSE team, as a way of supporting the Employer, and an updated Health and Safety Risk Assessment Document was prepared in 2024, consisting of a general section and specific assessments: ▸ General Risk Assessment Document; ▸ Work-Related Stress Risk Assessment Document; ▸ Cryobank Risk Assessment Document; ▸ BSL3 Laboratory Risk Assessment Document; ▸ Laser Risk Assessment Document; ▸ Videoterminalists Risk Assessment Document; ▸ Harassment Risk Assessment Document; ▸ Radon Risk Assessment Document.
2	Within the scope of health surveillance, in 2024 the company physician carried out **176** medical check-ups, **80** instrumental examinations (sampling), **65** spirometry tests, **1** tetan test;
3	With regard to fire and first aid management, six-monthly fire checks were conducted by a qualified external maintenance company. The annual emergency and evacuation test was conducted in December 2024. The monthly monitoring of fire-fighting equipment (as recommended by UNI 9994-1) and first-aid boxes is ensured by the HSE team, according to the procedures defined in the relevant internal HSE procedure;
4	Periodic meeting of the Prevention and Protection Service: the periodic meeting pursuant to Art. 35 of Leg. Decree 81/08 was conducted on 5/12/2024;
5	In April 2024, an audit was carried out on regulatory compliance with Leg. Decree 81/08 by certified external auditors, reporting about **70** observations (major NC, minor NC and recommendations). The audit was also an important opportunity to carry out a gap assessment against the UNI EN 45001:2023 standard. Since January 2024, the HSE team has been conducting monthly inspections at HT's research laboratories, based on an organised health, safety and environmental checklist. These inspections are an excellent opportunity for discussion and consultation with research staff. Out of **32** inspections, some **70** observations have been found so far, which have already been taken over by the research and maintenance staff and subjected to frequent follow-ups to monitor progress; The possible future adoption of an HSE Management System and certification according to UNI ISO 45001 standards will be a further evaluation tool for HT. This will enable the Institution to pursue continuous improvement of its health and safety risk mitigation activities, and to satisfy relevant stakeholders, as part of the sustainable social and environmental management of its processes.

HSE TRAINING AND DISSEMINATION

During the financial year 2024, general and specific training courses were provided in accordance with the State-Regions Agreement of 2011, in addition to HSE onboarding sessions according to the established schedule.

Below are the average hours of training provided in 2024, broken down by category and gender:

7.11 average hours **of training for employees**



Specific training is being finalised and will be delivered as a e-learning course on a dedicated platform. The project, to be completed by March 2025, includes the following modules:

- Principles of first aid;
- Proper handling of cryogenic liquids and gases;
- Transport and shipment of chemical or biological material;
- Use of carcinogens;
- Chemical Containment Levels (CCL);
- GMMs: regulatory aspects and scope;
- The correct use of CPE (chemical agents) in the laboratory;
- Risks in animal facilities;
- Use of cylinders and compressed gases in the laboratory;
- The correct use of CPE (biological agents) in the laboratory;
- Laboratory PPE: classification and correct use;
- Work-related stress;
- AOR in the laboratory: instruments and sources;
- Electrical safety in the laboratory.

With regard to staff involvement and awareness-raising, HT sends regular emails to its employees and publishes updates on the company intranet. Since January 2024, HT has been sharing **Safety Chronicles**, i.e., stories of researchers recounting accidents or near misses occurred during their experience in the laboratory. In addition, since April 2022, the HSE area has been attending regular operational meetings of HT Lab Managers to provide updated information on HSE issues and illustrate procedures and guidelines.

OTHER SAFETY-RELATED INITIATIVES

- in 2024, the HSE area implemented new guidelines to illustrate an overview of good laboratory practices applied within HT's research laboratories. These guidelines are designed for the management of health, safety and environmental risks. The guidelines represent specific protocols and provide for the implementation of action and improvement plans for the risks associated with employees' duties and activities. These protocols are an integral part of HT's Organisational, management and control model, pursuant to Legislative Decree 231/2001;

- in order to improve safety at work by ensuring that all potential risks are promptly identified and addressed, a new mandatory field was added to the 'incident' reporting system, managed by the CD&FM area, for building and equipment malfunctions. This field is intended to notify the HSE area of any unsafe conditions for workers resulting from malfunctioning equipment, buildings or similar hazards;

- guidelines for the use of bicycles and scooters in the MIND were prepared and disseminated, with the aim of promoting the safe use of these means of transport. The guidelines include detailed rules and regulations to ensure the safety of all users, both cyclists and pedestrians, and thus help reduce the risk of accidents as well as ensure a safe and secure environment for all those moving in the MIND area;

- the system for monitoring and managing accidents, injuries and near misses was improved, with the aim of preventing and protecting the health and safety of workers.

  This system is based on two fundamental steps:

  1. knowing how to behave in case of an accident and providing staff with the necessary knowledge and skills to deal correctly with emergency situations;
  2. reporting incidents, accidents and near misses in a timely manner, enabling a rapid response to critical issues and the adoption of preventive measures.

- a new Intranet page was implemented containing the list of biological and chemical agents present in HT. The list is divided into two files: one for biological agents and one for chemical agents. With these files, the risk phrases (R-phrases) and the protection phrases (S-phrases) phrases for each substance can be quickly consulted, facilitating safe and informed handling of these materials.

GRI

2.4.4. RESPONSIBLE SUPPLY CHAIN MANAGEMENT

GRI 205-1[12]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Responsible supply chain management'.

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Responsible supply chain management ensures that suppliers and partners comply with ethical and sustainable standards, so that the entire research process is conducted in a responsible and transparent manner.	**NEGATIVE IMPACT:** **Environmental exploitation and degradation:** despite efforts to responsibly manage the supply chain, exploitative working conditions may arise, including low wages and poor safety, undermining social sustainability. Furthermore, unsustainable practices, despite the presence of specific CAM requirements, can cause environmental degradation and have negative effects on people's health and the ecosystem. **POSITIVE IMPACT:** **Sustainable innovation:** responsible supply chain management improves working conditions, ensuring fair wages and a safer working environment, thus contributing to greater social equity. It also promotes environmentally-friendly practices that reduce the environmental impact, such as the use of sustainable materials or waste reduction.	**Disruption in the supply chain:** the limited availability of qualified suppliers may increase the risk of delays in the supply and procurement of materials and services needed to carry out activities. Issues with a supplier can delay research projects and increase procurement costs. Moreover, ethical violations may damage HT's reputation.	**Innovation and continuous improvement:** collaborating with suppliers who share a commitment to sustainability can bring innovation in supply chain management. This can include the development of new sustainable materials, more efficient production processes and better waste management practices, benefiting both the environment and operational efficiency. Furthermore, promoting social sustainability can improve HT's reputation and attract talent and funding.

[12]For details see chapter 4.3. GRI Content Index.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Responsible supply chain management ensures that suppliers and partners comply with ethical and sustainable standards, so that the entire research process is conducted in a responsible and transparent manner, supporting the scientific community with reliable and sustainable resources.	**NEGATIVE IMPACT:** **Environmental exploitation and degradation:** despite efforts to responsibly manage the supply chain, exploitative working conditions may arise, including low wages and poor safety, undermining social sustainability. Furthermore, unsustainable practices, despite the presence of specific CAM requirements, can cause environmental degradation and have negative effects on people's health and the ecosystem. **POSITIVE IMPACT:** **Sustainable innovation:** responsible supply chain management improves working conditions, ensuring fair wages and a safer working environment, thus contributing to greater social equity. It also promotes environmentally-friendly practices that reduce the environmental impact, such as the use of sustainable materials and waste reduction.	**Disruption in the supply chain:** the limited availability of qualified suppliers may increase the risk of delays in the supply and procurement of materials and services needed to carry out activities. Issues with a supplier can delay research projects and increase procurement costs. Moreover, ethical violations may damage HT's reputation.	**Lower cost of recovering obsolete technology**: the adoption of solutions using modular and standardised systems reduces the cost of recovering obsolete technology. In addition, the ability to upgrade and reuse existing components, rather than replacing them completely, reduces maintenance costs and extends the useful life of technologies, limiting the need for costly investments in new technologies.

STRATEGIC OBJECTIVE

Ensuring that the **supply chain** helps to find technological solutions that contribute to the reduction of consumption, the optimisation of available energy and resources, and lock-in minimisation. This involves analysing and verifying the costs/ benefits of known solutions against those on the market, including the selection of suppliers adopting sustainable practices and the continuous monitoring of their performance.	**NEGATIVE IMPACT:** **Environmental exploitation and degradation:** despite efforts to responsibly manage the supply chain, exploitative working conditions may arise, including low wages and poor safety, undermining social sustainability. Furthermore, unsustainable practices, despite the presence of specific CAM requirements, can cause environmental degradation and have negative effects on people's health and the ecosystem. **POSITIVE IMPACT:** **Sustainable innovation:** responsible supply chain management improves working conditions, ensuring fair wages and a safer working environment, thus contributing to greater social equity. It also promotes environmentally-friendly practices that reduce the environmental impact, such as the use of sustainable materials and waste reduction.	**Disruption in the supply chain:** the limited availability of qualified suppliers may increase the risk of delays in the supply and procurement of materials and services needed to carry out activities. Issues with a supplier can delay research projects and increase procurement costs. Moreover, ethical violations may damage HT's reputation.	**Innovation and continuous improvement:** collaborating with suppliers who share a commitment to sustainability can bring innovation in supply chain management. This can include the development of new sustainable materials, more efficient production processes and better waste management practices, benefiting both the environment and operational efficiency. Furthermore, promoting social sustainability can improve HT's reputation and attract talent and funding.

HT'S PROCUREMENT ACTIVITIES

HT, being an institutional unit belonging to the public administration sector (Sector S.13), follows Legislative Decree 36/2023, the new Public Contracts Code, for its procurement activities. When awarding contracts for the acquisition of works, services and supplies, it acts in accordance with the principles of economy, effectiveness, timeliness and fairness. Furthermore, it ensures the principles of free competition, non-discrimination, transparency, proportionality and disclosure, as well as the rotation of invitations and awards in the procedures requiring it.

HT pays special attention to energy and environmental sustainability criteria, avoiding any conflict of interest, to ensure transparent and responsible management.

HT also ensures compliance with the principles of disclosure and transparency, as set out in Article 20 of Legislative Decree 36/2023, providing for the publication of the information required by ANAC Resolution no. 1134/2017 - Annex I, Section Invitations to tender and Contracts, with reference to the private entities covered by Article 2-bis, paragraph 3 of Legislative Decree 33/2013.

HT has adopted a Regulation governing conflicts of interest and provides for appropriate measures to counter fraud and corruption. The Regulation includes procedures to effectively detect, prevent and resolve any conflict of interest in procurement procedures, avoiding distortions of competition and ensuring equal treatment for all economic operators.

Lastly, the Human Technopole Foundation carries out the checks provided for in Article 94 of Legislative Decree 36/2023 with regard to its suppliers, which also include the evaluation of corruption offences.

Economic operators wishing to participate in HT tenders must accept compliance with the Code of Ethics. The Code sets out the values and rules of conduct to be constantly referred to in the exercise of one's activities.

The conduct of anyone working in the interest of HT, regardless of their relationship, even temporary, with the Human Technopole Foundation, must be inspired by such principles.

As early as 2021, the Human Technopole Foundation issued a specific '*Purchasing Regulation*', revised in September 2022, which governs the procurement, award, conclusion and performance of public procurement contracts.

For every tender, HT thus guarantees:

- **a.** optimal use of resources needed for the selection process or contract performance, in application of the principles of efficiency and cost-effectiveness;
- **b.** appropriateness of its actions with respect to the achievement of the intended purpose and public interest, in application of the principle of effectiveness;
- **c.** no groundless protraction of the contractor selection process, in application of the principle of timeliness;
- **d.** fair conduct and good faith both in the award stage and in the performance stage, in application of the principle of fairness;
- **e.** the effective challengeability of tenders by potentially interested parties, in application of the principle of free competition;
- **f.** a fair and impartial evaluation of competitors and the elimination of obstacles or restrictions in the preparation of bids and their evaluation, in application of the principle of non-discrimination and equal treatment;
- **g.** transparency of tender procedures, as well as the use of tools ensuring quick and easy access to information on procedures, in application of the principles of transparency and publicity;
- **h.** appropriateness and suitability of the action to the purpose and amount of the contract, in application of the principle of proportionality;
- **i.** relationships with an open number of economic operators, ensuring an equal opportunity for all economic operators of being awarded a public tender, in application of the principle of rotating invitations and awards;

j. specification in tender documents of the minimum environmental criteria required by the law in force, in application of the principles of energy and environmental sustainability;

k. adoption of appropriate measures to prevent and resolve conflicts of interest both during tendering and contract performance, in application of the principle of preventing and resolving conflicts of interest.

Also through the development of digitisation projects and the effective organisation of procurement activities, HT seeks to match the timelines established by internal requirements, in terms of the purchase of goods and services needed to carry out institutional activities, to those necessary to comply with the obligations laid down by current procurement and public contract regulations.

ECONOMIC OPERATOR LIST

In 2024, the Human Technopole Foundation launched a new initiative to optimise collaboration with its suppliers by introducing an Economic Operator List. With this tool, managed via an online platform, suppliers can register and join HT's network. The initiative aims to improve transparency and efficiency in procurement processes related to: (1) selections of economic operators to be invited for procurements carried out by direct negotiations, (2) invitations to qualified companies for their participation in restricted and negotiated procedures, (3) procurements on a time and material basis within the limits and in the manner provided for by Legislative Decree no. 36/2023, (4) selections of professionals for professional appointments, (5) other specifically identified cases. All suppliers wishing to cooperate with HT must therefore register on the portal. Registration has the sole purpose of allowing suppliers to express their intention to be entered in the Economic Operator List, without this implying any commitment on the part of the contracting authority. The List is, therefore, a tool to be used in the preparatory activity of individual procurement procedures for works, services and supplies, and HT's Procurement area has actively encouraged suppliers to complete their registration to ensure a smoother and more efficient procurement process.

GRI

2.4.5. TALENT DEVELOPMENT

GRI 404-2[13]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Talent development'.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Talent development with investment in the continuing education and professional development of researchers to ensure that they have the necessary skills to conduct innovative research while maintaining high levels of competence and creativity in the field of biology and human health.	**NEGATIVE IMPACT:** **Employee demotivation**: reduced or lack of dedicated continuous training for employees might cause frustration and demotivation, negatively affecting work teams and production capacity as well as scientific research. **POSITIVE IMPACT:** **Increased skills and knowledge:** investment in continuous training and professional development significantly increases the skills and knowledge of researchers, also opening up new career opportunities and perspectives, and fostering a stimulating and productive working environment.	**Brain drain**: if adequate investment in continuous training and professional development is not made, researchers may feel frustrated and demotivated, affecting productivity and team morale. In addition, the lack of growth opportunities may prompt top talent to seek opportunities elsewhere, increasing turnover costs and reducing in-house skills..	**Increased attractiveness**: investing in professional development and a culture of continuous learning not only improves the skills and knowledge of researchers, but also makes the institution more attractive to new talent. An environment that supports professional growth fosters innovative ideas and approaches, benefiting scientific research and the institute's reputation.

STRATEGIC OBJECTIVE

Offering advanced training programmes and **talent development** opportunities prepares scientists to become leaders in their field.	**NEGATIVE IMPACT:** **Employee demotivation:** reduced or lack of dedicated continuous training for employees might cause frustration and demotivation, negatively affecting work teams and production capacity. **POSITIVE IMPACT:** **Increased skills and knowledge:** investment in continuous training and professional development significantly increases the skills and knowledge of researchers, promoting a culture of integrity and responsibility in research. This not only improves individual skills, but also strengthens HT's ability to innovate and remain competitive.	**Brain drain**: if adequate investment in continuous training and professional development is not made, researchers may feel frustrated and demotivated, affecting productivity and team morale. In addition, the lack of growth opportunities may prompt top talent to seek opportunities elsewhere, increasing turnover costs and reducing in-house skills.	**Talent attraction and retention:** investing in talent development can make HT more attractive to top researchers. Opportunities for professional growth and continuing education can help retain the best talent, reducing turnover and improving stability and research quality.

[13] For details see chapter 4.3. GRI Content Index.

TRAINING AND CAREER DEVELOPMENT AT HT

HT aims to train the next generation of researchers, capable of tackling unsolved challenges in the life sciences through cutting-edge, interdisciplinary and innovative research. To achieve this, HT adopts a two-pronged strategy:

1. **Training of in-house scientists**, namely scientists conducting research at the HT Campus;
2. **Training of the external scientific community**, i.e. the extended national and international community.

These two aspects are complementary. In-house trained scientists advance in their careers by taking up positions at other institutions and thus become 'external' scientists.

Likewise, 'external' scientists (e.g. trainees, visitors, etc.) who come into contact with HT as a result of the training offered thereby, can join the Human Technopole Foundation for the next step in their career, becoming 'internal' researchers.

HT's training strategy promotes this continuity and exchange. HT activities are thus presented according to such two main pillars - in-house and external training - depending on their target audience.

For more information on education and training activities, please refer to the appropriate sections in subchapter 2.3.3 'Offering advanced scientific training to the Italian scientific community'.

GRI

2.4.6. PROGRESS AND INNOVATION IN SCIENTIFIC RESEARCH

GRI 3-3[14]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Progress and innovation in scientific research'.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Progress and innovation in scientific research lead to discoveries, technologies and new knowledge that improve human health.	**NEGATIVE IMPACT:** **Animal experiments:** scientific research, both basic and applied, often involves the use of animals to perform experiments designed to validate scientific results previously obtained by suing methods that did not involve the use of animals. This can have an ethical impact, raising concerns about animal welfare and sustainability, and doubts about the need of using laboratory animals to complete a given scientific study. **POSITIVE IMPACT:** **Innovation:** research leads to the understanding of biological, genetic and environmental mechanisms underlying or influencing physiological conditions and disease. This may lead to the discovery of paradigms for the development of innovative programmes for the prevention and/or treatment of chronic or rare diseases, as well as programmes for environmental remediation and protection. This has a significant positive impact on public health, improving the quality of life.	**Reduction in confidence:** investing in research carries the risk that projects fail to achieve the desired results, in terms of management/ advancement of research projects. This can lead to a reduction in investor and stakeholder confidence and a consequent reduction in financial resources.	**Development:** scientific research allows the development of experimentation and development methods that can assist, reduce and sometimes replace the use of laboratory animals, improving the ethical and environmental impact of experimentation, and entailing concrete possibilities to shorten the average study time and the translation of discoveries from laboratory practices to clinical intervention on human beings (e.g. use of human stem cells, whether or not from patients), offering the possibility of creating synergies accelerating innovation and broadening the impact of scientific discoveries.

[14]For details see chapter 4.3. GRI Content Index.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Technology transfer means that scientific discoveries and technological innovations can be applied in practical areas, accelerating **progress and innovation in scientific research.** This process facilitates the dissemination of new technologies that can improve the quality of life and solve complex problems.	**NEGATIVE IMPACT:** **Unethical exploitation of technologies:** technology transfer can lead to situations where innovative technologies are used in unethical or irresponsible ways. For example, advanced technologies might be used in sectors that do not respect human rights or contribute to environmental damage. This may compromise the company's reputation and raise significant ethical concerns. **POSITIVE IMPACT:** **Acceleration of scientific progress:** effective technology transfer ensures the rapid application of scientific discoveries in practical areas, accelerating progress and innovation in scientific research. This process facilitates the dissemination of new technologies that can improve the quality of life and solve complex problems as well as improve research efficiency.	**Non-compliance:** inadequate management of technology transfer can cause non-compliance with the law. If the transferred technologies are used in a manner that violates environmental or social regulations, the company may face legal sanctions, reputational damage and loss of stakeholder trust.	**Collaborations and partnerships:** well-managed technology transfer can create opportunities for collaborations and partnerships between research institutions, companies and governments. These collaborations can increase the resources available for research and accelerate the adoption of new technologies, improving the quality of life and solving complex problems.

HT'S GENERAL APPROACH TO RESEARCH

HT is committed to actively promoting open science, research integrity and the application of best scientific practices, with the ultimate goal of having a positive impact on public health and improving people's quality of life. HT widely shares its results, data and software, establishing a culture of honesty, transparency and openness in the planning and conduct of research, data management and analysis, and scientific communication.

Throughout its activities, both internal and external, HT is committed to promoting a culture of research and innovation. HT's approach to research and the way in which research is carried out are extensively described in subchapter 2.3.1, *'Promoting research focusing on the fundamental mechanisms underlying human biology, which are relevant to people's health and wellbeing'*, to which reference should be made for more details.

ANIMAL WELFARE BODY

In 2024 the Human Technopole Foundation approved the guidelines for the operation of the Animal Welfare Body, in accordance with the requirements of Decree Law 4 March 214, no. 26 'Implementation of Directive 2010/63/EU on the protection of animals used for scientific purposes'. The Animal Welfare Body's main function is to protect the welfare of animals used for scientific purposes and to promote and monitor full compliance with the relevant laws. In particular, the Animal Welfare Body:

a. advises the staff dealing with animals on matters related to the welfare of animals, in relation to their acquisition, accommodation, care and use;
b. advises the staff on the application of the requirement of replacement, reduction and refinement, and keeps it informed of technical and scientific developments and promotes the professional updating of the staff using animals;
c. establishes and reviews internal operational processes as regards monitoring, reporting and follow-up in relation to the welfare of animals housed or used in the establishment;
d. gives a reasoned opinion on research projects and any subsequent changes, and notifies the project leader thereof;
e. forwards applications for the authorisation of research projects to the Ministry of Health, notifying the project leader;
f. follows the development and outcome of projects, taking into account the effect on the animals used, and identifies and advises as regards elements that further contribute to replacement, reduction and refinement;
g. advises on rehoming schemes, including the appropriate socialisation of the animals to be rehomed.

SCIENTIFIC PROGRESS ACCELERATION AT HT

HT's strategy of collaborating with industry includes a wide range of interactions, ranging from project-based research collaborations to joint training programmes and long-term strategic partnerships in specific research and development areas. In this field, pursuant to Article 49-bis of Decree-Law No. 34 of 19 May 2020 (converted into Law No. 77 of 17 July 2020), the Human Technopole Foundation has been assigned the task of establishing a 'Centre for Innovation and Technology Transfer in the life science field' and has been endowed with adequate financial resources to foster innovative processes proposed by public and private entities from the research and innovation system. Following a complex consultation with sector stakeholders, aimed at identifying the needs of the various parties involved in the technology transfer process, as early as July 2021 HT set up an in-house department dedicated to supporting the growth of the Tech Transfer (TT) culture in the Italian life science ecosystem. For details of the activities carried out by CITT, please refer to subchapter 2.3.4 '*Enabling the exploitation of the results of results and technological innovation through technology transfer*'.

GRI

2.4.7. INTEGRITY AND RESPONSIBILITY

GRI 3-3[15]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Integrity and responsibility'.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Integrity and responsibility are the core values underpinning scientific research; maintaining high standards in these areas ensures reliable results and promotes ethical and transparent research practices.	**NEGATIVE IMPACT:** **Reduction in confidence in science and impact on public health:** ethical misconduct that is not in line with the Code of Ethical Integrity reduces the entity's credibility and affects confidence on the part of the international scientific community and the public, and has a negative influence on the training and participation of new generations of researchers. Furthermore, the dissemination of unreliable research results can lead to wrong health decisions with negative consequences for the public health. **POSITIVE IMPACT:** **Reliability of results and dissemination of knowledge:** maintaining high standards of integrity and accountability ensures that research results are reliable and reproducible. This not only boosts public and stakeholder confidence in scientific research, but also facilitates the dissemination of knowledge. Transparency and ethics in research promote greater collaboration, sharing and reproducibility of results, thus accelerating scientific progress and improving quality of life.	**Risk of negative influence on posthumous studies:** the dissemination of scientific results that have been obtained according to loose and/or untruthful standards may influence research and development programmes, as well as information and prevention campaigns on human, animal and environmental health, posing risks to society along with the risk of inefficient investment of economic resources and funds.	**Innovation in research practices:** the adoption of ethical and transparent research practices can foster innovation. If HT stands out for its integrity, it can attract top talent and establish collaborations with other prestigious institutions, thereby enhancing the quality and impact of its research. Furthermore, HT can train new talents who can learn about and respect the integrity code, both in this institution and in institutions where they will carry out their scientific studies in the future.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Maintaining high standards of **integrity and responsibility** during technology transfer is essential to ensure that innovations are reliable and safe. This includes transparency in processes, compliance with the law and the adoption of ethical practices, which increase public and stakeholder confidence.	**NEGATIVE IMPACT:** **Corruption and unethical practices:** low integrity and accountability standards during technology transfer can lead to corruption and unethical practices. This can undermine stakeholder confidence, damaging HT's reputation and leading to legal consequences. **POSITIVE IMPACT:** **Increase in confidence and transparency:** maintaining high integrity and responsibility standards during technology transfer increases stakeholder confidence. Transparent processes and compliance with the law ensure that innovations are reliable and safe, enhancing HT's reputation and facilitating future collaborations.	**Risk of mismanagement and late publication of scientific results:** any delays in the drafting and conclusion of collaboration agreements, data management strategies and data submission/distribution may have a negative impact on the dissemination of scientific results, slowing down the progress resulting from their distribution in the scientific community and society, and reducing the possibilities for funding technology transfer and future research, thereby damaging HT.	**Ethical and sustainable leadership:** maintaining high integrity and responsibility standards can position HT as an ethical and sustainable leader in the research sector. This not only enhances its reputation, but also creates opportunities for new collaborations and partnerships, attracts attract talent and investment and promotes a positive corporate culture.

[15]For details see chapter 4.3. GRI Content Index.

THE RESEARCH ETHICS COMMITTEE AT HT

HT's scientific research activities are planned, evaluated, authorised and carried out, from an ethical point of view, in compliance with national and international laws, regulations, principles, guidelines, standards and best practices governing scientific research.

In this regard, in 2023 HT adopted a specific regulation defining the roles, duties and responsibilities of an institutional evaluation body for HT's research ethics and integrity (the Research Ethics Committee).

The Research Ethics Committee is mainly engaged in:

- evaluating the ethical implications of proposed research projects by issuing, where appropriate, institutional ethical approvals for such projects and activities, generally excluding projects conducted/promoted by external users of HT facilities and not involving HT research staff and funds;
- upon request, providing advice to the HT President, Supervisory Board, Management Committee, Director and Heads of Research Centres on research ethics and integrity issues related to HT's activities;
- upon request, providing advice to the HT President, Supervisory Board, Management Committee, Director and Heads of Research Centres on the handling of alleged research misconduct cases involving HT research staff and/or the use of HT funds and infrastructure;
- evaluating and giving opinions to HT's competent bodies on alleged research misconduct cases involving HT staff, other than cases amounting to disciplinary offences or violations of HT's 'Organisational, Management and Control Model under Legislative Decree no. 231 - 8 June 2001';
- defining the methods, procedures, documents and forms to be used to submit research project proposals to the Committee's review;
- contributing to the development of activities, documents, internal procedures and guidelines aimed at implementing an 'ethics by design' approach in planning/drafting research projects and in HT's scientific activities;
- contributing to the development of research integrity activities, documents, internal procedures and guidelines;
- contributing to the development of ethical activities, documents, internal procedures, guidelines and toolkits on other ethically relevant issues pertaining to HT's activities;
- in cooperation with other HT structures, promoting educational and training activities focusing on research ethics and integrity for HT staff;
- contributing to the definition, where appropriate, of ethical standards, documents and forms required for the use of HT infrastructures by external users of HT's National Facilities.

RESEARCH INTEGRITY AND RESPONSIBLE CONDUCT OF RESEARCH: THE HT REGULATION

Research integrity refers to the set of ethical principles and professional standards underpinning the responsible conduct of research. Research integrity covers all aspects of research, from planning, execution, interpretation and presentation to peer review and grant application. International guidelines and recommendations have been developed specifically for publicly funded research to promote research integrity, such as:

- Singapore Statement on Research Integrity (Second World Conference on Research Integrity - 2010);
- The European Code of Conduct for Research Integrity (Allea year 2023);
- Research Integrity | National Research Council (CNR).

According to these internationally recognised guidelines, the high quality and ethical standards of research can only be achieved with conduct based on the honesty, integrity and professionalism of researchers.
By adopting specific regulations, HT upholds the values of research integrity in accordance with the said international guidelines, promoting a culture that encourages good research practices and prevents research misconduct. HT also ensures that adequate resources and expertise are in place to maintain high standards of integrity and good governance, ensuring that the roles and responsibilities of all individuals involved in research are clear. Every HT researcher is therefore required to comply with the rules of good scientific practice as well as the Code of Ethics.

GRI

2.4.8. EFFECTIVE WASTE MANAGEMENT

GRI 306-3; GRI 306-4; GRI 306-5[16]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material theme of 'Effective waste management'.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Effective waste management, through the analysis of processes intended for the proper separation of waste by type, increases the recovery and reuse of materials and thus ensures a lower environmental impact, promotes sustainable practices within laboratories and research institutions.	**NEGATIVE IMPACT:** **Chemical & Bio Hazard and Environmental Contamination:** the negligent management of waste generated by research can contaminate air, soil and water resources. This can have direct detrimental effects on local flora and fauna and also pose a risk to people's health. **POSITIVE IMPACT:** **Reduction of the environmental impact:** effective waste management reduces the amount of hazardous and non-hazardous waste ending up in landfills, decreasing soil and water pollution. This contributes to a cleaner and more sustainable environment, improving the quality of life for the surrounding communities.	**Regulatory non-compliance:** HT might not comply with all waste management regulations. Non-compliance may lead to criminal and administrative sanctions and damage the institution's reputation.	**Industry best practice:** the careful management of raw materials aimed at waste reduction or increased recycling can result in HT being a model of best practice in the management of laboratory waste, including radioactive waste. This aspect may be positively viewed by stakeholders.

STRATEGIC OBJECTIVE

Effective waste management reduces the environmental impact and promotes sustainable practices within the research infrastructures shared with the scientific community, ensuring an organised and safe working environment.	**NEGATIVE IMPACT:** **Chemical & bio hazards and contamination:** if waste in shared infrastructures is not managed in a shared and effective manner, misconduct can arise, with significant negative impacts on the environment and people. **POSITIVE IMPACT:** **Reduction of the environmental impact:** effective waste management significantly reduces the environmental impact of research infrastructures. The implementation of practices such as recycling and/or proper treatment of waste (including hazardous waste) helps to maintain a safe working environment and contributes to environmental protection.	**Regulatory non-compliance:** within shared infrastructures, if waste management is not adequately disseminated with clear procedures, there is a risk of non-compliance with relevant local and national regulations. Non-compliance may lead to criminal and administrative sanctions and damage the institution's reputation as well as compromise environmental safety.	**Innovation in waste management:** investing in advanced technologies can lead to a more accurate management of raw materials and to the ensuing reduction of waste or a better separation of waste, which is essential for better waste management and its potential recycling. This may include the adoption of innovative recycling systems and the treatment of hazardous waste. Furthermore, promoting sustainable practices can enhance the reputation of the institution and attract funding and collaborations, contributing to the long-term sustainability of the research infrastructure.

[16]For details see chapter 4.3. GRI Content Index.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Including programmes on the **effective management of waste** produced by research in advanced scientific training, promoting sustainable practices and reducing the environmental impact.	**NEGATIVE IMPACT:** **Environmental pollution:** if advanced scientific training does not include programmes on effective waste management, researchers may not be adequately prepared to manage the waste generated by their activities. This can lead to inappropriate disposal practices, increasing the risk of environmental pollution and damaging the ecosystem. **POSITIVE IMPACT:** **Environmental impact reduction:** including effective waste management programmes in advanced scientific training can significantly reduce the environmental impact.	**Sanctions and reputational damage:** ineffective training on proper waste management can prompt behaviour causing regulatory non-compliance, resulting in criminal and administrative sanctions and damaging HT's reputation.	**Innovation and sustainable leadership**: integrating effective waste management topics into training programmes can establish HT as a leader in the field of sustainability. This approach not only fosters HT's better reputation and attracts investment, but also opens up new research opportunities and stimulates innovation, promoting sustainable practices and technologies within the scientific community.

WASTE MANAGEMENT AT HT

In 2023, the Human Technopole Foundation introduced a new internal procedure defining the management process for hazardous and non-hazardous waste produced by scientific research activities and the separate collection of waste produced by administrative activities.

The internal procedure is based on the principles of conduct and protocols defined in HT's Organisational, Management and Control Model (Legislative Decree 231/01) that all corporate managers, each one for the aspects falling within their remit, must follow with regard to specific sensitive activities, in order to:

- prevent the environmental offences regulated by Legislative Decree 231/01 (Art. 25-undecies 'Environmental offences');
- ensure conditions of fairness and transparency in conducting company business.

Therefore, the approach adopted by HT aims to ensure that all operations and activities related to the material environmental impact of the waste management process, as assessed by the Initial Environmental Assessment (including impacts that might be produced by contractors, external maintenance providers or visitors), are conducted in a planned and controlled manner. These activities are aimed at preventing deviations from HT's procedures, objectives and environmental compliance obligations.

The HSE area has defined how waste produced by the Human Technopole Foundation is to be classified, collected, disposed of, transported and registered, ensuring:

- improved environmental performance;
- fulfilment of environmental compliance obligations;
- achievement of environmental objectives;
- prevention of incidents that may lead to spillages of waste and/or other substances and preparations from storage sites during internal handling prior to sending for disposal.

With regard to HT's activities, as at 31 December 2024, the following types of waste were registered:

WASTE PRODUCTION			
EWC	DESCRIPTION	HAZARDS	2024 KG
070704*	Solvents from laboratory analyses	HP3, HP5	364.00
140601*	HFC refrigerant gas	HP14	42.00
150103	Wooden packaging, such as crates and platforms	NH	681.00
150106	Mixed materials packaging, not sorted, nominally empty	NH	2,589.00
150110*	Emptied mixed packages with residues of laboratory reagents and solvents	HP 3, HP 4, HP 5, HP 7, HP 11, HP 14	296.00
150202*	Ultrapure water system vent filters, used	HP4, HP5	10.00
160304	Water-based, unusable waste refrigeration products	NH	1,412.00
170603*	Rock wool insulation	HP7	53.00
180103*	Mixed, potentially infected waste from Microbiological Research Laboratory	HP9	12,369.00
180106*	Neutral aqueous solution from microbiological research laboratory activities	HP4	5,485.00
180106*	Acidic aqueous solution with reagents, from microbiological laboratory research	HP6	89.00
180106*	Basic aqueous solution with reagents, from microbiological laboratory research	HP6, HP8	237.00
180107	Aqueous solution from fermentation activity	NH	978.00
180107	Waste from DNA sequencing machine	NH	332.00
190905	Resin and carbon cartridges for water purification, saturated or exhausted	NH	93.00
200307	Mixed furniture such as cabinets, desks and the like, from Laboratory	NH	350.00
Total			**25,380.00**

Hazardous substances are indicated with the symbol *

In compliance with **GRI 306**, details are provided of the waste handled in 2024. It should be noted that the data in the following table have been drawn from the SOGER waste management system, based on the quantity of each type of waste and how it is handled (recovery or disposal).

2024					
WASTE COMPOSITION		UoM	WASTE GENERATED	WASTE DIVERTED FROM DISPOSAL (306-4A)	WASTE DIRECTED TO DISPOSAL (306-5A)
070704*	Other organic solvents, washing solutions and mother liquors	Kg	364.00	-	364.00
140601*	Chlorofluorocarbons, HCFCs, HFCs	Kg	42.00	42.00	-
150103	Wood packaging	Kg	681.00	681.00	-
150106	Mixed material packaging	Kg	2,589.00	1,553.40	1,035.60
150110*	Packaging containing residues of or contaminated by hazardous substances	Kg	296.00	-	296.00
150202*	Absorbents, filter materials (including oil filters not otherwise specified), rags and protective clothing, contaminated with hazardous substances	Kg	10.00	-	10,00
160304	Inorganic wastes other than those mentioned in 16 03 03	Kg	1,412.00	-	1,412.00
170603*	Other insulation materials containing or consisting of hazardous substances	Kg	53.00	-	53.00
180103*	Waste that must be collected and disposed of using special precautions to prevent the spread of infection	Kg	12,369.00	-	12,369.00
180106*	Hazardous chemicals or chemicals containing hazardous substances	Kg	5,811.00	-	5,811.00
180107	Chemicals other than those mentioned in 18 01 06	Kg	1,310.00	-	1,310.00
190905	Saturated or exhausted ion exchange resins	Kg	93.00	-	93.00
200307	Bulky waste	Kg	350.00	210.00	140.00
Total waste		**Kg**	**25,380.00**	**2,486.40**	**22,893.60**

Hazardous substances are indicated with the symbol *

Waste has decreased overall, mainly as a result of the disposal of large quantities of furniture and furnishings in previous years. On the contrary, waste generated by research activities has progressively increased over the years. This increase is connected to both the overall expansion of research activities and the increase in the number of employees involved. Below are details of the quantities of waste produced in research, broken down for each of the three years considered:

RESEARCH-RELATED WASTE	2022	2023	2024
Total Kg	10,587	17,688	23,947

For further information on waste produced and compared with previous years, see chapter 4.2 in GRI Tables 306 - Waste.

2024								2024						
TOTAL WASTE GENERATED		OF WHICH NOT SENT TO LANDFILL						OF WHICH SENT TO LANDFILL						
			RECOVERY OPERATIONS			WHERE RECOVERY TAKES PLACE			DISPOSAL OPERATIONS				WHERE DISPOSAL TAKES PLACE	
WASTE GENERATED	QUANTITY (TON)	QUANTITY (TON)	WASTE PREPARED FOR REUSE	WASTE FOR RECYCLING	WASTE FOR OTHER RECOVERY OPERATIONS	ONSITE	OFFSITE	QUANTITY (TON)	INCINERATED WASTE (WITH ENERGY RECOVERY)	INCINERATED WASTE (WITHOUT ENERGY RECOVERY)	WASTE SENT TO LANDFILL	WASTE FOR OTHER DISPOSAL OPERATIONS	ONSITE	OFFSITE
HAZARDOUS WASTE	**18.95**	**0.04**	-	-	-	-	-	**18.90**	-	-	-	-	-	-
070704*	0.36	-	-	-	-	-	-	0.36	Yes	-	-	-	-	Yes
140601*	0.04	0.04	-	Yes	-	-	Yes	-	-	-	-	-	-	-
150110*	0.30	-	-	-	-	-	-	0.30	Yes	-	-	-	-	Yes
150202*	0.01	-	-	-	-	-	-	0.01	Yes	-	-	-	-	Yes
160601*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
170603*	0.05	-	-	-	-	-	-	0.05	-	-	Yes	-	-	Yes
180103*	12.37	-	-	-	-	-	-	12.37	Yes	-	-	-	-	Yes
180106*	5.81	-	-	-	-	-	-	5.81	-	Yes	-	-	-	Yes
NON-HAZARDOUS WASTE	**6.44**	**2.44**	-	-	-	-	-	**3.99**	-	-	-	-	-	-
150103	0.68	0.68	-	Yes	-	-	Yes	-	-	-	-	-	-	-
150106	2.59	1.55	-	Yes	-	-	Yes	1.04	Yes	-	-	-	-	Yes
160214	-	-	-	-	-	-	-	-	-	-	-	-	-	-
160304	1.41	-	-	-	-	-	-	1.41	-	Yes	-	-	-	Yes
180107	1.31	-	-	-	-	-	-	1.31	-	Yes	-	-	-	Yes
190905	0.09	-	-	-	-	-	-	0.09	Yes	-	-	-	-	Yes
200307	0.35	0.21	-	Yes	-	-	Yes	0.14	Yes	-	-	-	-	Yes
TOTAL WASTE GENERATED	**25.38**													

Hazardous substances are indicated with the symbol *

RADIOACTIVE WASTE MANAGEMENT AT HT

During the financial year 2024, HT did not produce any radioactive waste from research activities. Radioactive waste is generally characterised by radiological content, which is classified into categories according to the concentration of radionuclides and the time required for radioactivity to decay. In Italy, such waste is classified, according to the *Decree of 7 August 2015*[17], into five categories based on radioactivity content:

- very short-lived waste;
- very low-level waste;
- low-level waste;
- intermediate-level waste;
- high-level waste.

and specific disposal solutions are identified for each category[18].

HT has already launched a process to manage radioactive waste and any related equipment contaminated by such material (e.g. slides, gauze, bibula paper and other disposable material).

This process involves collecting waste in polyethylene cans with airtight caps, which are then placed inside steel bins provided by the authorised collection company. A label or accompanying sheet is placed on each bin, indicating the type of radionuclide and the overall activity. When the containers are full, pick-up is arranged through the STRIMS communication portal, i.e. the Waste, Materials and Sources Traceability System set up by the National Inspectorate for Nuclear Safety and Radiation Protection. On the day of collection, the containers are placed in a steel bin reporting all the information on the product contained (radionuclide, activity, physical state, closure date) and delivered to the authorised collection company.

The integrated management of radioactive waste from research activities, within which HT falls, is regulated by Article 74[19] of Legislative Decree No. 101 of 31 July 2020. The Integrated Service, managed by ENEA, guarantees all phases of the management cycle of radioactive waste and sources no longer used in the medical, industrial and scientific research sectors.

The figure below shows the integrated management flow of radioactive medical waste.

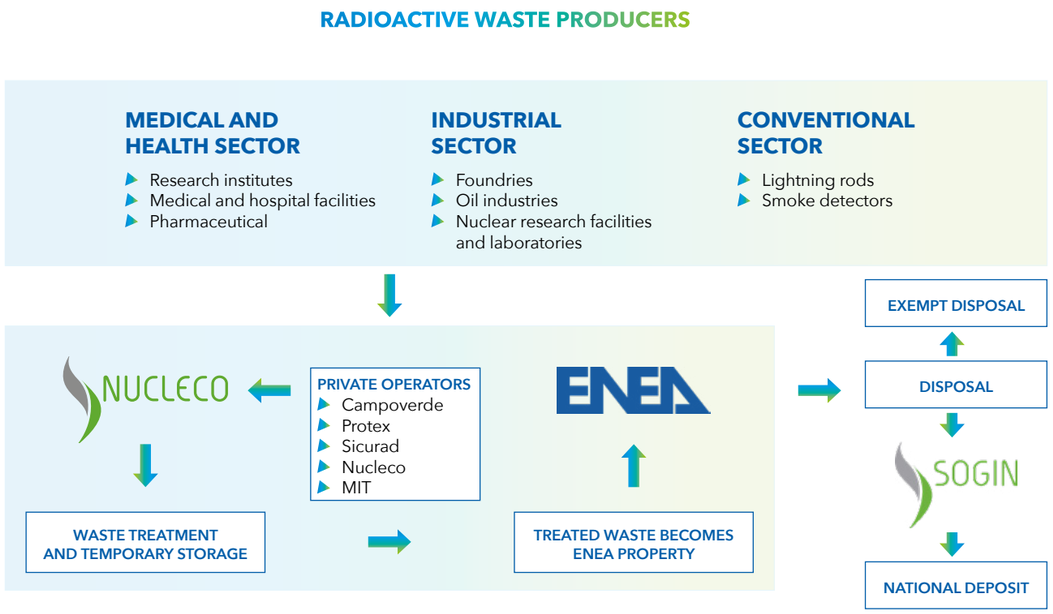


Figure 1. Integrated management of radioactive waste of medical-health origin.[20]

Figure 2. Radioactive waste management at the Human Technopole Foundation

[17] DECREE 7 August 2015. Classification of radioactive waste under Article 5 of Legislative Decree No. 45 of 4 March 2014.

[18] https://www.depositonazionale.it/ ; https://www.depositonazionale.it/raccoltadocumenti/linee-guida/guida_tecnica_n26_gestione_rifiuti_radioattivi.pdf

[19] LEGISLATIVE DECREE 31 July 2020, no. 101 Implementation of Directive 2013/59/Euratom, laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/ Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom and reordering of sector legislation to implement Article 20, paragraph 1 a) of Law No 117 of 4 October 2019. (20G00121) (OJ General Series No. 201 of 12-08-2020 - Ordinary Suppl. No. 29)

[20] https://www.eai.enea.it/component/jdownloads/?task=download.send&id=280&catid=10&Itemid=101

ENVIRONMENTAL NON-COMPLIANCES

No environmental damage was caused during 2024 and, therefore, no definitive sanctions or penalties were imposed for environmental offences or damage; twelve Environmental Non-Compliances (NC) were recorded due to the emission of HFC gas from equipment used to provide air-conditioning to buildings.

CIRCULAR FOOD DELIVERY FOR WASTE REDUCTION

HT has joined the 'Circular Food Delivery' service provided by an innovative food-tech start-up whose mission is to change the packaging paradigm from product to service so as to make 'reuse' the new standard. The service offered to HT means that employees can order their meal from the Zero Impack App and receive their lunch directly at work in reusable containers that are later retrieved, sanitised and put back into circulation. This process eliminates packaging waste and drastically reduces the environmental impact. The project also contributes to raising awareness of sustainability and reuse issues, which are extremely topical and high on the European political agenda.

GRI

2.4.9. INFRASTRUCTURE MANAGEMENT

GRI 3-3[21]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Infrastructure management'.

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Infrastructure management fosters the development of scientific research and innovation through sustainable practices that reduce the environmental impact and ensure the safety and well-being of researchers.	**NEGATIVE IMPACT:** **Maintenance and Upgrading:** infrastructure management calls for continuous investment in maintenance and technological upgrading. Underinvestment in infrastructure maintenance and upgrading can cause breakdowns and expose researchers to health and safety issues, compromising a safe working environmen. **POSITIVE IMPACT:** **Operational efficiency and knowledge dissemination:** efficient infrastructure management reduces the environmental impact and ensures the safety and well-being of researchers. This creates an optimal working environment that promotes productivity and research quality. Furthermore, well-managed infrastructures facilitate collaboration and knowledge dissemination, promoting innovation and the adoption of sustainable practices.	**Risk of obsolescence:** Infrastructure can quickly become obsolete due to rapid technological advances. This entails the risk of having to engage in costly upgrades or replacements to ensure competitiveness and regulatory compliance.	**Sustainable innovation**: infrastructure management offers the opportunity to implement innovative and sustainable technologies. This not only improves operational efficiency, but can also reduce long-term costs and improve HT's reputation for sustainable best practices.

[21] For details see chapter 4.3. GRI Content Index.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Effective and sustainable **infrastructure management** ensures that infrastructure remains constantly up to date, ensuring operability, safety and cutting-edge standards to meet the changing needs of the scientific community.	**NEGATIVE IMPACT:** **Excessive consumption of resources:** poor infrastructure management and upgrading can cause a significant consumption of natural resources and energy. The ensuing impacts are increased pollution and waste generation. **POSITIVE IMPACT:** **Improved operability and security:** Effective and sustainable management of infrastructure ensures that it remains constantly up-to-date, guaranteeing continuous operability and security for all users. High quality standards can thus be maintained while meeting the continuing demands of the scientific community.	**Technological obsolescence:** implemented technologies can quickly become obsolete. This calls for additional investment, with an increase in operating costs and the risk of having to interrupt or slow down scientific research activities.	**Adoption of innovative technologies**: investing in innovative technologies can improve operational efficiency. This helps to develop further collaborations and attract new talent, further enhancing HT's reputation.

STRATEGIC OBJECTIVE

Providing access to high-quality infrastructure and conveying the importance of **infrastructure management** enables scientists to conduct advanced research efficiently and safely while fostering innovation.	**NEGATIVE IMPACT:** **Inadequate training on infrastructure management:** if advanced scientific training does not adequately include infrastructure management, researchers may not be able to properly use and maintain equipment and facilities. This can lead to inefficient use of resources, frequent failures and potential security risks. The lack of specific expertise in infrastructure management can also slow down research progress and increase operating costs. **POSITIVE IMPACT:** **Efficiency and safety in research:** providing access to high-quality infrastructure and conveying the importance of its management enables scientists to conduct advanced research efficiently and safely. This not only fosters innovation, but also reduces downtime and any risks associated with inadequate infrastructure.	**Infrastructure overload and failures:** inadequate training can cause infrastructure overload, resulting in frequent failures and downtime. This not only compromises the safety of researchers, but can also significantly slow down research progress and increase maintenance and repair costs, diverting valuable resources that could be devoted to training and research.	**Innovation and collaboration:** access to high-quality infrastructure can attract collaborations with other institutions and companies. This can lead to joint research projects, funding and innovation opportunities that would otherwise not be possible. It can also position the institute as a benchmark in advanced research, enhancing its reputation and attractiveness for new talent.

TECHNOLOGICAL INNOVATION OF HT INFRASTRUCTURES

The Agreement signed on 30 December 2020 between the Ministry of Economy and Finance, the Health Ministry, the University and Research Ministry and the Human Technopole Foundation regulates the implementation, management and enhancement of National Facilities with a high technological impact on the HT Campus.
Fulfilling this mission requires innovative and interdisciplinary research using state-of-the-art technology, taking into account the high costs of infrastructure development and maintenance. Investing in advanced technologies and keeping them operational requires significant financial resources. In order to make sure that these technologies remain relevant and up-to-date over time, a management model is needed that allows for the incurrence of these expenses without compromising the financial sustainability of the institution.

For HT, this means in practice adopting an organisational and financial structure that allows for continued investment in research and advanced technology, while keeping costs affordable for users. The model adopted by HT addresses this need by centralising the procurement and management of laboratory equipment. This approach optimises resources, reduces overall costs and ensures that technologies are available and accessible to all researchers, while maintaining the relevance and effectiveness of the infrastructure over time.

Each National Facility and Core Facility must be equipped with specific resources for technology development, which may vary according to the specific activities of each infrastructure and users' needs. HT provides constant interaction with internal and external users to understand their needs for the development and implementation of new technologies, and to evaluate new methods and tools developed by HT scientists or external researchers that may be of general interest to the scientific community. Such new methods and technologies can potentially be adapted and offered as a service by single infrastructures to the scientific community.

Interaction with technology providers is another important mechanism to keep infrastructures at the forefront of technological innovation. Collaborations with industry can facilitate the introduction of new technologies and the joint development of new methods for specific applications. In any event, the guiding principle in technological development remains the implementation of services of general interest to the scientific community, and presupposes a balancing of efforts of the different units of each infrastructure to best meet user demands and needs.

Finally, the expansion into new research areas or the creation of new research lines may entail broadening the set of technologies available at HT as well as its portfolio of shared infrastructures.

For more detailed information on the National Facilities, please refer to subchapter 2.3.2 '*Supporting research by providing technologies to the Italian scientific community through shared research infrastructures, the National Facilities*' and to HT's website at the following link: National Facilities - Human Technopole.

GRI

2.4.10. INTERACTION WITH THE NATIONAL SCIENTIFIC COMMUNITY

GRI 3-3[22]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Interaction with the national scientific community'.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Interaction with the national scientific community facilitates the exchange of ideas and resources, accelerating scientific progress and improving the quality of research.	**NEGATIVE IMPACT:** **Academic competition and duplication of efforts:** interaction can increase competition, causing tension between researchers. Moreover, some researchers may be reluctant to share findings as they might be afraid of losing a competitive advantage. Lastly, poor coordination in shared research projects may duplicate efforts and lead to resource mismanagement. **POSITIVE IMPACT:** **Knowledge exchange and dissemination of discoveries:** Interaction with the national scientific community facilitates the exchange of ideas, resources and expertise. This not only accelerates scientific progress, but also improves the quality of research. Collaboration between researchers and institutions promotes the dissemination of scientific discoveries, increasing the visibility and impact of research.	**Risk of conflicts of interest:** collaborations with different institutions and researchers may lead to conflicts of interest. This risk, if not properly managed, can compromise the integrity of research and public confidence in scientific results.	**Access to funding and resources:** interaction with the national scientific community can open up opportunities to access additional funding and resources. Collaborations can lead to joint projects increasing the research and innovation capacities of the organisations involved.

[22]For details see chapter 4.3. GRI Content Index.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Providing shared research infrastructures, through constant **interaction with the national scientific community**, responds to the needs of researchers and promotes collaboration, thus accelerating the progress and quality of research.	**NEGATIVE IMPACT:** **Academic competition:** constant interaction with the scientific community can lead to potential conflicts of interest between institutions and researchers, causing a tense environment that hinders collaboration and resource sharing. **POSITIVE IMPACT:** **Acceleration of scientific progress:** Providing shared research infrastructures and maintaining constant interaction with the scientific community enables a rapid response to the needs of researchers. Collaboration and the exchange of ideas accelerates scientific progress, improving the quality of research, while the optimisation of resources can maximise the effectiveness of the available infrastructure.	**Infrastructure overload:** infrastructure overload may be caused by high demand from the national scientific community. This can cause maintenance problems, reduced operational efficiency and possible interruptions in services.	**Development of collaborative networks:** promoting interaction with the national scientific community through shared infrastructures can lead to the development of strong collaborative networks. These are essential to facilitate the sharing of knowledge, expertise and resources, improving the efficiency and effectiveness of research.

STRATEGIC OBJECTIVE

Fostering collaboration and **interaction with the national scientific community** through advanced training programmes facilitates the exchange of knowledge and resources, improving the quality of research.	**NEGATIVE IMPACT:** **Academic competition:** interaction with the national scientific community can also cause competition between research institutions. If not managed properly, these conflicts can create tensions and hinder collaboration, reducing the effectiveness of training and talent development programmes. **POSITIVE IMPACT:** **Strengthening collaborations:** promoting interaction with the national scientific community through advanced training programmes facilitates the sharing of knowledge and resources. This reinforces collaborations between research institutes, universities and other scientific organisations, improving the quality and innovation of research.	**Risk of conflicts of interest:** collaborations with different institutions and researchers may lead to conflicts of interest. This risk, if not properly managed, can compromise the integrity of research and public confidence in scientific results.	**Attraction of new funding:** strong interactions with the national scientific community can open up opportunities to access shared resources and joint funding. National and international collaborations can lead to more ambitious research projects and greater visibility for HT, increasing the chances of obtaining financial support from government and private entities.

PARTNERSHIPS AND COLLABORATIONS AT HT

HT aims to establish and develop collaborative relationships with the Italian and international biomedical research community. In 2024 numerous discussions were conducted with regard to partnerships with universities, research centres, clinical research institutes, scientific societies and research networks, both in Italy and abroad.

These interactions led to the establishment and renewal of formal partnerships as well as to the signing of several collaboration agreements for joint projects with scientists from different universities, hospitals and research centres.

The national universities and research hospitals involved in the above-mentioned collaboration projects include, among others, the Oasi Maria SS IRCSS, the Scuola Internazionale Superiore di Studi Avanzati (SISSA), Eurac, the University of Milan, the National Research Council, the Monasterio Foundation, Scuola Superiore Sant'Anna in Pisa, and the Policlinico San Donato IRCSS.

Details of scientific collaborations and partnerships are constantly updated on HT's website (Our Scientific Partnerships and Collaborations - Human Technopole). Further information on HT's scientific collaborations and partnerships can be found in subchapter 2.2.4 '*Relational Capital*' of this document.

HT's openness to collaborations and partnerships with the biomedical community is crucial, as is their management. Ineffective management of such relationships can give rise to a competitive and reputational risk with potential negative effects on both available resources and HT's attractiveness. HT's commitment to the development and consolidation of external relations is thus continually ongoing.

HT's current Organisational Regulations require that the Strategy and Scientific Affairs department, through the Scientific Relations, Partnerships and Collaborations Service, maintain relations with outstanding scientific institutions and organisations, offer new opportunities for scientific partnerships that are strategic to HT's Scientific Leadership, and identify, in coordination with the Legal department, the most appropriate form of legal agreement to support joint scientific projects between HT and external partners/collaborators.

GRI

2.4.11. WELFARE

GRI 401-2; GRI 401-3[23]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Welfare'.

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Welfare is essential to support employees working on complex and innovative projects, and adequate physical and mental support improves concentration, reduces stress and increases productivity.	**NEGATIVE IMPACT:** **Work overload and burnout:** despite the importance of welfare to support employees, if support measures are not adequate or sufficiently implemented, employees can experience work overload and burnout. This can cause health problems and undermine production capacity. Burnout can increase absenteeism and turnover, creating a less stable working environment. **POSITIVE IMPACT:** **Employee welfare and knowledge dissemination:** an effective welfare system supports the physical and mental well-being of employees, improving their concentration and reducing stress. This not only increases the productivity and quality of activities, but also facilitates the dissemination of knowledge. Healthy employees are more likely to collaborate and share their results, fostering a more dynamic and innovative research environment.	**Risk of administrative overload:** managing a complex welfare system may lead to an increased administrative burden and waste of resources. This can divert resources and attention away from core research activities, reducing operational efficiency. Moreover, if the welfare system is not well managed, it can lead to dissatisfaction among employees, compromising their well-being and productivity.	**Talent attraction and retention:** a well-structured welfare system not only improves the well-being and productivity of researchers, but also strengthens the image of the institution, making it attractive for top talent.

[23] For details see chapter 4.3. GRI Content Index.

HT'S COMMITMENT TO STAFF

HT has always paid great attention to creating and promoting a working environment that enhances employee well-being. The aim is to enable employees to effectively balance their work responsibilities and their personal commitments, while offering numerous benefits and opportunities for growth. Here are some of the initiatives promoted to this end:

- remote working, up to 2 days per week, for employees with suitable positions, regulated by a specific internal procedure;
- flexible working hours;
- specialised and interdisciplinary training programmes;
- additional pension schemes;
- insurance programmes for employees;
- additional parental leave benefits and options, going beyond what is provided for by national laws;
- education allowances for impatriates whose children attend international schools;
- special agreements with day-care centres, close to the workplace, for employees with children;
- guest house services;
- dedicated breastfeeding areas for working mothers within HT;
- transparent remuneration policy, committed to ensuring equal pay for equivalent positions (ref. Gender Equality Plan);
- support and assistance programmes for employees from abroad;
- counselling services for people's psychological wellbeing;
- support to the creation of 'HT Club Houses', i.e. groups of employees who meet to socialise and pursue common interests, such as sports, culture and music, regardless of their employment contract with HT;
- help for employees with the flu vaccination campaign;
- information and awareness-raising campaigns on healthy and sustainable habits for on-Campus activities, as well as mental and physical health promotion programmes;
- participation in and promotion of many non-work activities in the MIND area;
- agreements with Tax Assistance Centres and related training sessions in connection with declaration and taxation issues;
- agreements with local gyms to offer employees reduced rates and promote a healthy lifestyle, and agreements with osteopaths;
- agreements for employee catering services, including the endorsement of the 'Zero Impack' programme. This service promotes sustainability by using reusable containers for business lunches, provided by participating catering companies.

HT'S INTERNATIONAL DESK

HT's International Desk supports Italian and foreign staff arriving from abroad, taking care of immigration and relocation processes. It provides assistance in obtaining the necessary documents for legal residence in Italy, collaborating with the Human Resources area since the time of preparing the related job offer. It is the point of reference for immigration and relocation issues, tax benefits and institutional policy enforcement.

It deals with clearance applications, provides assistance in obtaining visas and residence permits as well as the issue of necessary documents for colleagues and their families. During the relocation process, the International Desk supports the integration of employees, helping them settle down easily in Italy.

Among its support initiatives, HT has launched a network-building experimental project called the 'HT Club House', which connects the family members of colleagues arriving from abroad. This network acts as a point of reference and guidance for those following their family member in Italy, with support being offered by employees who have already gone through the same experience.

Since 2023, the International Desk Page has been available, namely an intranet page that guides colleagues through immigration procedures and obtaining the necessary Italian documents. The page also includes a section on Italian regions and their uniqueness, to reinforce HT's welcome and a sense of belonging.

Lastly, HT has entered into an agreement with the Accademia di Italiano, offering discounted rates for Italian language courses to employees and their families, facilitating their cultural integration.

In addition to its current activities, in 2024 the International Desk organised a number of bilingual (Italian and English) webinars on tax deductions and corporate welfare. In addition, an agreement was signed with the Fitprime platform to enable employees to take psycho-physical wellness courses and access affiliated facilities.

GRI

2.4.12. SUSTAINABLE ECOSYSTEM

GRI 305[24]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Sustainable ecosystem'.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
A **sustainable ecosystem** promotes the advancement of scientific research, increasing awareness in the management of natural resources, also for future generations, and preserving an ecological balance for the health of the planet.	**NEGATIVE IMPACT:** **Pollution and resource consumption:** excessive use of resources depletes available reserves, endangering the ecological balance and increasing greenhouse gas emissions. **POSITIVE IMPACT:** **Preservation of natural resources:** a sustainable ecosystem promotes the responsible management of natural resources, ensuring that they are available for future generations. The responsible management of resources also helps increase HT researchers' and employees' awareness and adoption of sustainable practices with regard to both operational and ancillary activities (e.g. sustainable transport mobility).	**Risk of non-compliance:** environmental regulations are constantly changing. HT may fail to comply with the new rules, with this resulting in penalties or loss of reputation.	**Technological innovation:** the adoption of sustainable practices can stimulate technological innovation, leading to the development of new technologies and research methods that can improve efficiency and reduce the environmental impact.

INFORMATION RELATED TO ENVIRONMENTAL MANAGEMENT

Research activities may involve the use of chemical preparations and reagents, as well as the production of potentially environmentally-hazardous waste. Through its strict HSE policy, the Human Technopole Foundation seeks to mitigate the risk of negative impacts caused by its activities, preventing environmental pollution and eliminating health hazards. To this end, specific operational rules have been adopted for the management of hazardous waste from research activities. These rules cover all stages of waste management: from production to disposal, from handling to transport and storage.

In the previous year, the HSE Area performed and completed an environmental assessment of the material environmental impacts associated with HT's processes and activities.

[24]For details see chapter 4.3. GRI Content Index.

The Environmental Assessment was conducted by the HSE team to:

- identify internal and external factors and the requirements and expectations of relevant stakeholders that may affect the expected outcomes (Context Analysis);
- based on a Life Cycle Perspective (LCP) approach, identify and keep up-to-date all environmental aspects connected with the activities and products provided by the Human Technopole Foundation and determine their materiality in order to establish priority actions;
- identify and update the applicable environmental legislation and, consequently, all compliance obligations, to verify the regulatory compliance of such activities;
- evaluate how environmental aspects connected with the activities performed are handled and identify areas for possible improvement in environmental performance;
- obtain an overall assessment of the environmental issues linked to HT's activities, as an objective benchmark for subsequent improvements.

According to the environmental risk assessment, the environmental risk levels for each HT process/ activity considered fall, under normal operating conditions, within the range of 4 to 8 (medium risk level) or even 1 to 3 (low risk level). Medium risk levels are also recorded for emergency situations.

For each environmental risk rated as medium and/ or high, appropriate mitigation actions, procedures and operating instructions have been defined (e.g. waste management in-house procedure, visual management in laboratories, etc.).

With regard to any environmental impacts that are not directly managed by HT, but over which it can exercise control, such as incoming and outgoing logistics, maintenance companies and external suppliers, treatment plans are contractually defined. These plans include the definition of operational controls and supervisory activities, with the aim of improving and monitoring the environmental performance of external suppliers.

Based on the principles of conduct and protocols defined in HT's Organisational, Management and Control Model 231, the Human Technopole Foundation is committed to defining and implementing an Environmental Policy and an Environmental Management System (EMS) compliant with UNI EN ISO 14001, integrating these activities into its strategic plan.

By adopting its Environmental Management System, HT aims to:

- improve its environmental and energy performance;
- prevent environmental pollution;
- contribute concretely to the implementation of the Organisational, Management and Control Model 231 and to the prevention of environmental offences, protecting HT;
- ensure that operations and activities associated with material environmental impacts, as set out in the Environmental Assessment, are conducted in a planned and controlled manner.

COMMUTING PLAN

The increase in HT's staff, both current and expected in the coming years, has prompted HT to examine its possible negative environmental consequences, in particular the increase in CO2 emissions due to increased staff mobility and traffic.

In 2022, HT appointed a Mobility Manager, who drafted and approved an initial Commuting Plan. This plan, after describing HT's internal and external context, defined the areas for intervention and the corresponding roadmap, based on the seriousness and urgency of the problems considered, taking into account the relationships with other bodies and companies in the area.

Some of the initiatives proposed in the plan were implemented over the years, such as:

- **Carpooling**: awareness campaigns were launched and reserved parking areas were created for carpooling employees. In addition, the HT Carpooling App was developed, available via web and smartphone, which allows drivers to enter their home-work itinerary so that passengers can contact them and join them on their journey;
- **Awareness-raising campaign:** an awareness-raising campaign was conducted on the use of public transport, publishing on the company intranet virtuous examples of colleagues using alternative means to private cars, such as the metro, train, or bicycle or other sustainable means. In addition, information was provided on public transport bonuses offered by the Italian government and the benefits of sustainable mobility;
- **Public transport information**: employees using public transport are constantly updated, via a dedicated section of HT's intranet, on any strikes or critical issues. Maps of cycle and pedestrian routes to the campus are also available;
- **Company fleet of bicycles**: HT's fleet of bicycles available to employees was improved.

In 2024, considering the increase in HT's staff, a new Commuting Plan was prepared in line with the Mobility Management pillars defined by EPOMM, the European Mobility Management Platform. The 2024-2025 action plan includes a number of priority actions, also based on the results of the Human Technopole Foundation's 'Commuting (2024)' questionnaire, which involved 58% of HT's staff.

The priority actions that are identified in the plan (and that have already been implemented in part) are:

1	Increasing the frequency of shuttle services within the MIND area, in cooperation with other MIND tenants, to better meet the needs of employees using public transport and to encourage its use;
2	Increasing shuttle capacity in cooperation with other MIND tenants;
3	Expanding the micro-mobility fleet for mobility within the district, in cooperation with other MIND tenants;
4	Considering the opportunity of increasing the appeal of public transport by partially offsetting transport costs for employees.

With regard to the MIND area and electric mobility, HT employees can also use electric vehicle charging stations.

GRI

2.4.13. DIVERSITY, INCLUSION AND HUMAN RIGHTS

GRI 405-1[25]

The following table highlights the main negative and positive impacts as well as risks and opportunities associated with the material topic 'Diversity, inclusion and human rights'.

STRATEGIC OBJECTIVE

TOPIC DESCRIPTION	IMPACT	RISK	OPPORTUNITY
Diversity, inclusion and human rights are fundamental principles to ensure a working environment that involves people with different backgrounds, experiences, skills and perspectives, improving the overall quality of research.	**NEGATIVE IMPACT:** **Discrimination and exclusion:** despite efforts to promote diversity and inclusion, discriminatory and exclusionary practices may persist. This can lead to a toxic working environment, where some researchers feel marginalised or not valued. Discrimination can have direct negative effects on the mental and physical health of employees, reducing their motivation and productivity. **POSITIVE IMPACT:** **Improving the quality of research:** promoting diversity, inclusion and human rights creates a working environment that values people with different backgrounds, experiences, skills and perspectives. This enriches the research process, leading to innovative ideas and more comprehensive solutions to scientific problems, improving the quality of research.	**Reputational risk:** human rights violations or discriminatory practices by HT can have serious reputational and financial consequences.	**Talent attraction:** a strong commitment to diversity, inclusion and human rights can make HT more attractive to top talent from all over the world. This not only enriches the pool of skills and knowledge available, but also enhances HT's reputation as an inclusive workplace. In addition, a diverse and inclusive working environment can stimulate creativity and innovation, leading to more robust and meaningful research results while also helping to attract additional financial resources.

[25]For details see chapter 4.3. GRI Content Index.

EQUALITY, DIVERSITY AND INCLUSION IN THE WORKPLACE AT HT

Equal opportunities, gender equality and diversity maximisation have always been fundamental values for HT. In accordance with the *Regulation for Equality, Diversity and Inclusion in the Workplace*, HT is committed to valuing, protecting and supporting all its staff members. The aim is to build an inclusive culture among colleagues and for potential new recruits, regardless of their nationality, religion, ability, age, cultural background, gender identity and sexual orientation.

HT values and preserves diversity, supporting equity between all genders, ethnicities and social classes in the workplace, and is committed to ensuring fair treatment of all employees and to promoting equality, so that every member of the workforce has equal rights, responsibilities and opportunities. By promoting equality and integrating diversity, HT thus favours inclusion so as to allow everyone to feel accepted and valued.

Below are some of the results achieved over the years in terms of procedures adopted, certifications and initiatives.

Regulation on the Human Resources area

The Regulation defines the principles inspiring the Human Technopole Foundation in employee management, as well as the operational processes and activities carried out by the Human Resources Area.

The guiding principles in carrying out its activities are (i) impartiality, (ii) transparency, (iii) equal treatment, gender equality, inclusion and non-discrimination.

In particular, HT values and preserves diversity by supporting equity between the sexes, ethnicities and social classes in the workplace.
HT is thus committed to:

- guaranteeing fair treatment of all employees and promoting and ensuring gender equality with regard to the presence and professional growth of women;
- promoting and disseminating the gender equality policy;
- determining and regularly reviewing the Gender Equality Plan;
- ensuring the effective operation of the gender equality management system, its results and stakeholders' corresponding satisfaction, as well as ensuring its monitoring and guidance by qualified persons.

The Regulation defines the main processes handled by the Human Resources area, i.e. those relating to staff administration and recruitment, organisation and staff planning, compensation and benefits, non-scientific training, mediation and counselling, international desk and mobility management, and trade union relations.

Guidelines to address gender bias in recruitment and selection processes

HT has developed guidelines to address gender bias in recruitment and selection processes. The guidelines are intended to describe how gender bias can manifest itself during the personnel selection process as well as to suggest solutions to limit its effects through gender bias prevention measures and training initiatives for personnel involved in personnel recruitment processes.

Internal procedure for the prevention of abuse and harassment

HT adopted and subsequently updated a procedure for the prevention of abuse and harassment.

The purpose of the procedure is to:

- prevent and eliminate harassment and abuse in the workplace. This objective requires the creation of a safe and respectful working environment through the promotion of organisational behaviour based on equal treatment and the dissemination of appropriate behaviour;
- punish any act or behaviour amounting to harassment or violence in the workplace, in all its forms;
- promote a working environment in which everyone's dignity is respected and interpersonal relations are fostered, based on the principles of respect, equality and mutual fairness.

The procedure defines the process for reporting and handling any harassment and/or violence suffered at work, including the use of secure and confidential reporting channels, the investigation of complaints and the adoption of appropriate measures to protect employees.

HT's Gender Equality Plan

With regard to gender equality, HT has formalised this ongoing commitment to gender equality by defining an action plan for the implementation of its gender equality policy, namely the Gender Equality Plan (GEP), also known as the Gender Equality Strategic Plan (reference standard: UNI/ PdR 125:2022). The GEP meets the need to ensure a fair working environment where diversity is seen as a value, and describes the set of actions and measures that HT has adopted and intends to adopt to promote and guarantee equal opportunities in the workplace, measuring the progress of results through specific key performance indicators.

The first GEP, which was valid for the 2022-2024 period, was later updated for 2025-2027 period. GEP's update is submitted to the Management Committee and the Sustainability Committee for approval, then to the Supervisory Board and the President.

HT's new GEP builds on the experience gained in the implementation and evaluation of the previous GEP adopted for the 2022-2024 three-year period, drawing on several European and Italian R&I-focused initiatives.

In particular, the strategy of the TARGET project (Target - Taking a Reflexive approach to Gender Equality for institutional Transformation), with Fondazione Giacomo Brodolini Srl SB (FGB) as a partner, and the Gender Equality in Academia and Research (GEAR) toolkit of the European Institute for Gender Equality (EIGE) (Gender Equality in Academia and Research - GEAR tool | European Institute for Gender Equality) significantly influenced the drafting of this new document.

The **6** general objectives defined in the plan are as follows:

1	Raise awareness of gender equality, diversity and inclusion issues;
2	Promote work-life balance and organisational culture;
3	Support gender balance in hiring and career advancement, particularly for leadership and decision-making roles;
4	Gender mainstreaming in scientific research;
5	Measures against gender-based violence, including sexual harassment;
6	GEP development, implementation and communication.

A specific budget has been set aside for the implementation of the measures of the plan.

In accordance with the eligibility criteria of Horizon Europe's Gender Equality Plan, HT's GEP:

- is a public document, available on HT's web page (Human Technopole Commitment to Gender Equality - Human Technopole) and is periodically updated, reviewed and distributed within the organisation;
- involves collecting and monitoring data and evaluating progress;
- establishes specific training dedicated to gender equality issues and intended for the Human Technopole Foundation as a whole, including activities for specific topics or groups of people;
- has dedicated resources: in order to monitor GEP implementation and progress, its updating and the management of the allocated budget, the Human Technopole Foundation has established the Gender Equality Team (GET), coordinated by HT's Director of Administration and consisting of members and collaborators.

HT's UNI/PdR 125:2022 certification

In 2024, as a testament to its constant efforts to ensure equality and inclusion, HT achieved a significant milestone by obtaining the UNI/PdR 125:2022, certification, which is granted to organisations promoting gender equality and fostering inclusive workplaces.

HT's Women Network

The Women Network (WN), a network spontaneously launched by women from all HT departments, job positions and levels of seniority, is an 'action' of one of the goals of the Gender Equality Plan 2022-2024. The mission of the WN is to create an internal network to share experiences and provide a safe space to discuss gender issues, especially those related to career development and work-life balance.

The WN works closely with the Gender Equality Team, the Training & Development Office and the Scientific Training Office to promote meaningful initiatives that foster a conscious, representative and inclusive work environment.

In 2024, the Women Network had **87** members and organised many events and discussion initiatives in which speakers addressed topics related to gender differences, career development, work-life balance, leadership and mentorship. The WN thus plays a crucial role in fostering an inclusive and empowering environment, establishing itself as a vital platform for fostering connections, promoting career development and encouraging open dialogue.

Some of the key aspects contributing to the success of the WN are:

Involvement of different speakers

- Networking: the network acts as a link between young professionals, promoting their growth within the community;
- Balance between science and administration: by integrating scientific and administrative topics, the WN offers a comprehensive view of career development;
- Empowerment through visibility: the inclusion of men as speakers and participants enhances the variety of viewpoints;

Career development

- Discussions on career challenges: addressing obstacles in career progression and providing solutions makes the network effective;
- Career information and mentorship: the WN facilitates discussions on career paths, professional experiences and the importance of mentoring;

Community building

- Community building: through structured events and informal gatherings, the WN fosters a sense of belonging and collaboration (the feeling of 'not being alone'). Regular events throughout the year ensure continuous opportunities for involvement and learning;
- Inclusive and informal atmosphere: this safe space allows individuals, especially younger or introverted ones, to ask questions, voice their perspectives and participate in comfortable and relaxed discussions;
- Social activities: events such as the Summer Party strengthen relationships and enhance networking opportunities;

Communications

- Transparent communications: Teams groups, posters, etc.;
- Two annual checkpoints with members to collect feedback and proposals enable the WN to stay in touch with the needs of the WN community.

Some areas for improvement are planned for the near future so that the Women Network can continue to be relevant. Areas for improvement include: enhancing internal and external communications, increasing the involvement of male leaders and participants, better defining roles within the network, exploring new event formats and working with HR to involve even more employees. These actions aim to strengthen the impact of the WN and create an even more dynamic and inclusive community.

HT's Rainbow Club

The Club was developed out of a commitment to promote a safe and inclusive environment for the LGBTQIA+ community. Its more than **30** members organised a number of social activities and initiatives in 2024 with the aim of creating a focal point for people from the LGBTQIA+ community in need of support, advice or simply a friendly ear.

The Club helps disseminate information such as reporting on events taking place in Milan or organising HT's attendance of external events.

03

OUR EXPECTATIONS FOR THE FUTURE

HT represents an important opportunity to strengthen the life science community in Italy. In order for the institution to be successful, it is essential to manage possible risks that may undermine its proper development and make the most of opportunities in the short and medium term.

3.1 Risks and opportunities 250

3.1 Risks and opportunities

A number of risks deriving from both the external and internal context, which might have negative effects on HT's short- and medium-term development, can be identified. However, there are also several opportunities that might foster its development.

The main risks from the **external** context are as follows:

a) The impact of HT's status as a para-public organisation on the implementation of its determined strategies.

The complexity and timeframes that characterise public organisations, which are necessary to meet the guidelines of public-spending watchdogs, may affect HT's ability to allocate available resources and implement its strategy at any given time as decided by its internal bodies.

b) The political risk.

Changes in the Italian and international political scenario might affect HT's medium-term mission and strategic objectives, creating potential uncertainty along the pathway to the achievement of its original project.

c) The risk of insufficient interaction and collaboration with research institutes operating in Italy in the same scientific sectors as HT.

This source of risk is linked to the nature of the relationships that HT may establish with other Italian research institutions. In fact, the rise of competitive rather than collaborative relationships would affect HT's available resources and its national and international attractiveness.

d) The risk arising from the delay in the development of the MIND area.

As an urban district devoted to innovation, MIND was created to generate progress through a collective dimension. A delay in the development of site infrastructure and/or development plans for one of the public or private core areas might also have negative effects on HT. Firstly, slowdowns or changes to development plans for the area might entail additional costs or fewer services for the Campus. Furthermore, if some actors, particularly from the academic world, delayed their settlement plans, the establishment of scientific collaborations in the district would be slowed down. This delay would negatively affect the ecosystem which, by definition, is a space for exchange between disciplines and for technology and scientific transfer.

EXTERNAL RISKS

The table below shows the relationships between external risks, key strategic objectives and major capital impacts:

RISK	STRATEGIC OBJECTIVE	CAPITAL
The impact of HT's status as a para-public organisation on the implementation of its determined strategies.		Infrastructural capital Human capital Intellectual capital
The political risk.		Human capital Intellectual capital Financial capital
The risk of insufficient interaction and collaboration with research institutes operating in Italy in the same scientific sectors as HT.		Relational capital Human capital Intellectual capital
The risk arising from the delay in the development of the MIND area.		Relational capital Human capital Intellectual capital Infrastructural capital Financial capital

With reference to the **internal context**, the main risks are as follows:

a) Potential lower attractiveness of HT to outstanding national and international researchers after shifting its strategic focal point.

Partially shifting the focal point of HT's activities to the development of National Facilities might be seen by potential talented researchers as possibly producing cuts in resources allocated to basic research and thus in the ensuing opportunities, and thus make HT less attractive as a place for research development.

RISK →	RISK MANAGEMENT
Potential lower attractiveness to outstanding national and international researchers after shifting HT's strategic focal point.	HT has developed human resources management practices and employment programmes comparable to those offered by international institutions. In addition, HT will continue to develop excellent scientific research, increasing its scientific reputation. As long as the Foundation continues to receive stable support from its stakeholders, this risk can be considered low.

b) Potential lower attractiveness of HT to industrial partners after shifting its strategic focal point.

Partially shifting the focal point of HT's activities to the development of National Facilities might be seen by private institutes, potential technology transfer partners, as a drop in HT's interest in this area of activity, thus weakening its relations with industrial partners.

RISK →	RISK MANAGEMENT
Potential lower attractiveness to industrial partners after shifting HT's strategic focal point.	HT has launched activities for the implementation of a 'Centre for Innovation and Technology Transfer'. This risk can remain low thanks to CITT's efficient activity in attracting stakeholders and industrial partners to share projects and collaborations.

c) Potentially reduced standing of the HT project and loss of reputation with stakeholders.

A slowdown in infrastructural investments, also due to external causes, might lower the standing of the entire project, harming HT's reputation as an outstanding national project.

RISK →	RISK MANAGEMENT
Potentially reduced standing of the HT project and loss of reputation with stakeholders due to delays in infrastructural investments.	Such events, which have already delayed the development of HT in the past, may recur in the future. The Foundation will work with its partners and stakeholders to try to ensure that the length of any delays is not such as to have a significant effect on project implementation. Therefore, this risk is deemed manageable.

INTERNAL RISKS

The table below shows the relationships between internal risks, key strategic objectives and major capital impacts:

RISK	STRATEGIC OBJECTIVE	CAPITAL
Potential lower attractiveness of HT to outstanding national and international researchers after shifting its strategic focal point.		Relational capital Human capital Intellectual capital
Potential lower attractiveness of HT to industrial partners after shifting its strategic focal point.		Relational capital Intellectual capital Financial capital
Potentially reduced standing of the HT project and loss of reputation with stakeholders as a result of delays in infrastructural investments.		Relational capital Human capital Intellectual capital Financial capital Infrastructural capital

The opportunities that could foster HT's short- and medium-term development and success are as follows:

a) Availability of cutting-edge research infrastructure with an ensuing positive impact on HT's image and its attractiveness to the world of science and industry.

State-of-the-art research laboratories and equipment make HT attractive to numerous stakeholders: high-profile researchers, research bodies and universities, and industrial partners.

CUTTING-EDGE RESEARCH INFRASTRUCTURE

OPPORTUNITY

The availability of cutting-edge research infrastructure has a positive impact on HT's image and makes its attractive to the world of science and industry.

POSITIVE EFFECT MAXIMISATION

HT can maximise the positive effect of this opportunity by developing a 'user access' strategy, ensuring transparent and effective use of its infrastructure and making it available to the scientific community.

b) Availability of substantial financial, technological and human resources to be allocated to scientific research.

The provision of substantial and high-quality resources allows for the development of important projects and is also an important driver for the acquisition of further, especially financial resources, made available by national and international bodies (e.g. participation in calls for tenders, grants).

SIGNIFICANT FINANCIAL, TECHNOLOGICAL AND HUMAN RESOURCES

OPPORTUNITY

The provision of substantial and high-quality resources allows for the development of important projects and is also an important driver for the acquisition of further, especially financial resources, made available by national and international bodies.

POSITIVE EFFECT MAXIMISATION

HT can maximise the effect of this opportunity by developing outstanding projects and high-quality collaborations that can attract additional resources from national and international bodies (e.g. participation in calls for tenders, grants).

c) HT's location in the MIND area.

MIND is currently one of the most important national urban regeneration projects and is increasingly attractive also to international investors. HT's location in the MIND district is an opportunity to develop relationships, collaborations and partnerships with outstanding organisations and institutes in the field of scientific research and technology transfer, as well as an important public presence for the enhancement of the new Milan area.

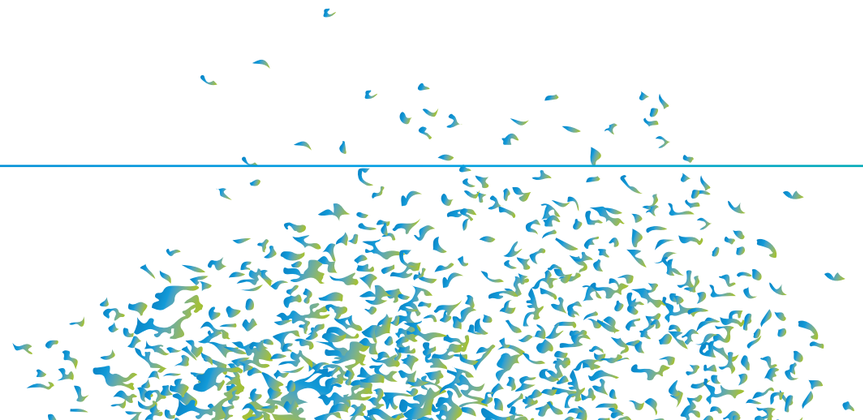
HT'S LOCATION IN THE MIND AREA

OPPORTUNITY

HT's location in the MIND area - a flagship national project that is increasingly attractive also to international investors - is an opportunity to develop relationships, collaborations and partnerships with outstanding organisations and institutes in the field of scientific research and technology transfer.

POSITIVE EFFECT MAXIMISATION

HT can maximise the positive effect of this opportunity by developing and maintaining relationships with MIND area partners, scientific stakeholders and technology transfer partners. Further opportunities will arise from the development of relationships to achieve sustainable development goals (ESG).



OPPORTUNITY

The table below shows the relationships between opportunities, key strategic objectives and main capital impacts:

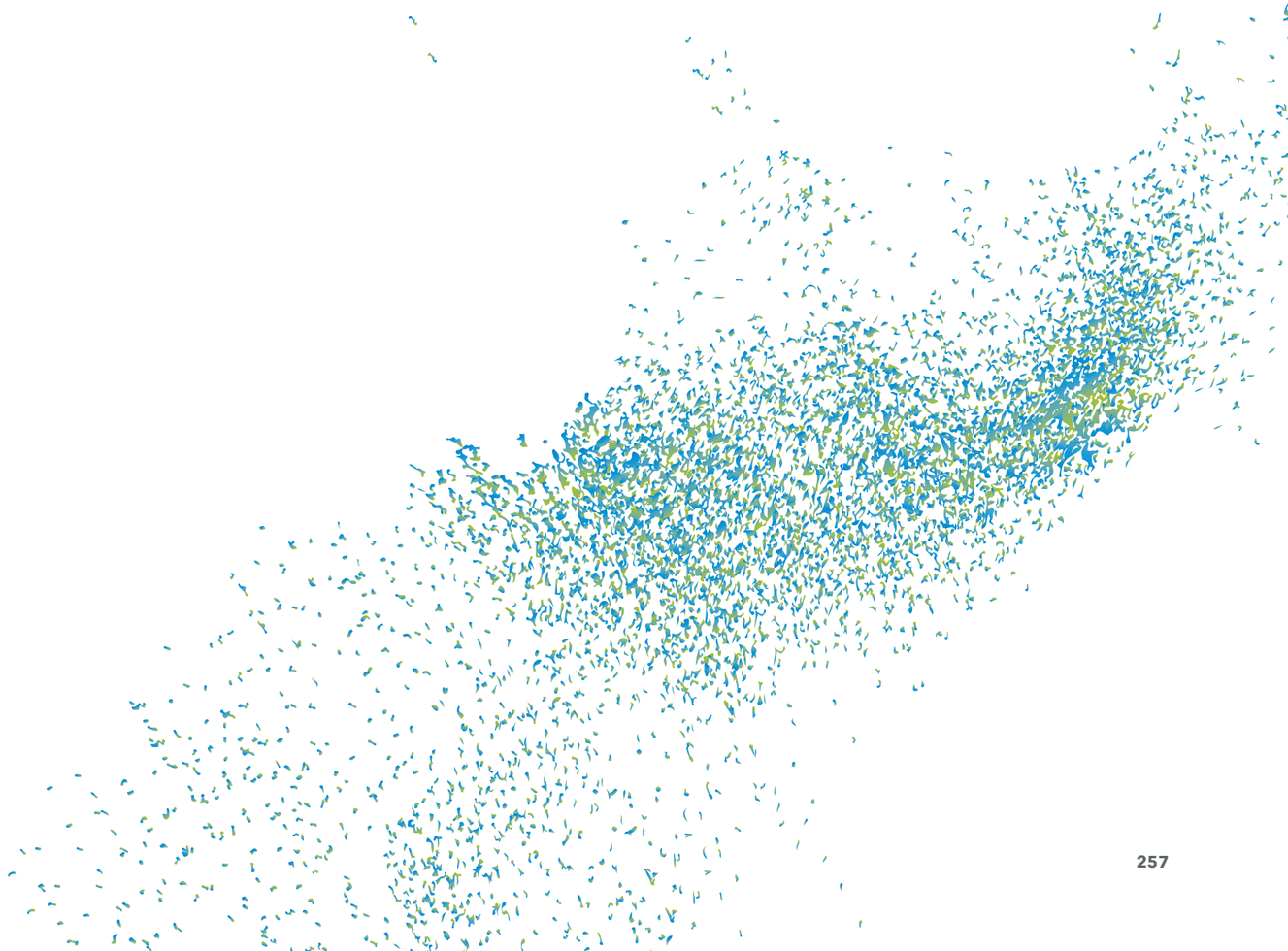
OPPORTUNITY	STRATEGIC OBJECTIVE	CAPITAL
Availability of cutting-edge research infrastructure with an ensuing positive impact on HT's image and its attractiveness to the world of science and industry.		Relational capital Human capital Intellectual capital Infrastructural capital
Availability of substantial financial, technological and human resources to be allocated to scientific research.		Relational capital Human capital Intellectual capital Financial capital Infrastructural capital
HT's location in the MIND area.		Relational capital Human capital Intellectual capital

ESG RISKS

Risk management has become a particularly important issue in the current macroeconomic scenario, with increasing attention being paid not only to typical governance risks but also to environmental and social risks. Looking briefly at the details of these latter types of risks, the former (environmental risks) can be broken down into two categories: 'physical risk' and 'transition risk'. Physical risk refers to the financial impact of climate change on business, is classified as 'acute' or 'chronic' and can cause material damage or reduce productivity. Transition risk refers to the financial loss that may be incurred by an entity while shifting towards a more sustainable economy.

Lastly, social risks may be defined as risks related to human rights issues, social responsibility, internal and external stakeholder relationships, gender equality, diversity and inclusion.

Against this backdrop, the Human Technopole Foundation has developed the double materiality matrix, the details of which are given in chapter 2 of this document, subchapter 2.1 *'Stakeholder engagement and the materiality matrix'*.



04

PERFORMANCE ANALYSIS

Transparency, completeness, relevance and comprehensibility guide the evaluation of our performance

4.1 Key performance indicators 260

4.2 GRI Tables 268

4.3 GRI Content Index 290

Valentina Cecatiello
Senior Technician, Vannini Group

4.1 Key performance indicators

The table below shows the performance indicators related to the 8 strategic objectives of the Human Technopole Foundation.

PERFORMANCE INDICATORS/STRATEGIC OBJECTIVES

PROMOTING RESEARCH FOCUSING ON THE FUNDAMENTAL MECHANISMS UNDERLYING HUMAN BIOLOGY, WHICH ARE RELEVANT TO PEOPLE'S HEALTH AND WELL-BEING

KPIs	2024 DATA / REFERENCES	2023 DATA / REFERENCES	NOTES
Number of research groups	25	25	
Number of cohort studies involved	76	53	
Amount of external funding (individual fellowships/grants and other research funding) formalised in 2024	€11,430,808, of which €5,847,756 claimed as at 31.12.2024	€5,386,450, of which €2,459,390 claimed as at 31.12.2023	
Amount of external funding (individual fellowships/grants and other research funding) formalised in 2025	€193,643	€4,986,334	
Funding received from parties other than MEF as a percentage of total funding in 2023	3.54%	0.74%	
Number of joint publications with external institutions	183	118	
Number of publications in international peer-reviewed journals	190	122	
Number of new experimental methods/tools/protocols	50	37	

SUPPORTING RESEARCH BY PROVIDING TECHNOLOGIES TO THE ITALIAN SCIENTIFIC COMMUNITY THROUGH SHARED RESEARCH INFRASTRUCTURES, THE NATIONAL FACILITIES

KPIs	2024 DATA / REFERENCES	2023 DATA / REFERENCES	NOTES
Investments (amount) in buildings/laboratories/ technologies	€18,887,579	€5,535,807	From 2024 onwards, the gross investment is considered
Investments (amount) in intangible assets	€65,914	€14,521	From 2024 onwards, the gross investment is considered
% progress of infrastructure development projects (scheduled projects)	% progress of existing buildings: 100% % progress of buildings under design: 2% The last phase of the project, the final acceptance, is scheduled for August 2028, postponed from the previous deadline of April 2027	% progress of existing buildings: 100% % progress of buildings under design: 2% The last phase of the project, the final acceptance, is scheduled for August 2028, postponed from the previous deadline of April 2027	
% of square metres dedicated to research (including laboratories)	44%	41%	The total area of the campus was recalculated in 2024, showing a slight increase. In addition, a detailed analysis of the laboratories was carried out, which revealed that the area actually covered by them, without considering offices and technical rooms, is 31% of the total square metres.
National Facilities	qualitative	qualitative	

OFFERING ADVANCED SCIENTIFIC TRAINING TO THE ITALIAN SCIENTIFIC COMMUNITY

KPIs	2024 DATA / REFERENCES	2023 DATA / REFERENCES	NOTES
Number of PhD students	82	59	
Number of postdocs	56	35	
Number of researchers from foreign institutions	132	103	
% Italians returning from abroad	23%	36%	
Scientific visitors hosted	24	45	
Early career fellows funded	0	0	
Scientific conferences/courses/ training events organised (internal)	36	23	
Scientific conferences/courses/ training events organised (external)	4	5	
Number of participants in scientific events/conferences/ training courses organised (external)	388	390	
Number of participants in scientific events/conferences/ training courses organised (internal)	1) Total participants HT = 556 2) Individual participants HT = 307	1)Total participants HT = 376 2) Individual participants HT = 187	
Number of scientific seminars held at HT	1) HT Internal Seminar Series: 25 2) HT External Seminar Series: 2 3) Seminars by invited scientists: 47 TOT: 74	98	

SCIENTIFIC REPUTATION AND DISSEMINATION

KPIs	2024 DATA / REFERENCES	2023 DATA / REFERENCES	NOTES
Number of participations in conferences with presentation of validated talks/posters	286	204	
Number of researchers present in governance roles/bodies/review boards of outstanding international institutions/research organisations	17	15	
Number of dissemination/ educational initiatives organised for non-specialist stakeholders	0	1	
Number of research awards/ honours/prizes (per institution/ field)	6	6	

ENABLING THE EXPLOITATION OF THE RESULTS OF RESEARCH AND TECHNOLOGICAL INNOVATION THROUGH TECHNOLOGY TRANSFER

KPIs	2024 DATA / REFERENCES	2023 DATA / REFERENCES	NOTES
Number of Technology Transfer training events	6	8	
No. of participants in Technology Transfer training events	411	500	
No. of HT scientists/professionals trained on Technology Transfer	3	5	
No. of stakeholders involved in Technology Transfer activities	62	60	
No. of international events that HT participated in or organised	4	3 missions abroad + 1 international conference held in the MIND area (4)	
No. of countries with which Technology Transfer relationships have been established	4	2	
No. of agreements/collaborations with companies/hospitals/research institutes for Technology Transfer	4	2 + 2 associations (FITT and PERFECT Network)	
CITT (Centre for Innovation and Technology Transfer)	qualitative	qualitative	

SUSTAINABILITY (ENVIRONMENTAL, SOCIAL AND ECONOMIC)

KPIs	2024 DATA / REFERENCES	2023 DATA / REFERENCES	NOTES
ENVIRONMENTAL			
Energy from renewable sources (MWh)	0*	7,028.42	*see note on this point in subchapter 2.4.1. 'Energy efficiency and responsible consumption'
CO_2 emissions avoided by using electricity from renewable sources (tons)	0*	2,171.08	*see note on this point in subchapter 2.4.1. 'Energy efficiency and responsible consumption'
No. of environmental NCs / No. of audits	nc= 12 audit=0	nc=2 audit=0	
SOCIAL			
% of researchers out of total employees	69%	60%	
% of female staff representing HT in events	Women 39% Men 61%	Women 39% Men 61%	
Annual % increase of female staff in higher grades (0-1-2-3 senior managers)	women: 42% men: 58% increase: -2%	women: 43% men: 57% increase: -6%	
% improvement in gender balance in recruitment for 0-5 grade positions	-1.7%	2%	
Number of anonymous sexual harassment or gender offence complaints handled per year	0	0	
Number of training courses on unconscious prejudice and bias per year	1	1	
No. of new services for child and/or family care provided to staff	1	1	
Parental leave - total number of eligible employees	158 men and 182 women	129 men and 151 women	
Number of children for whom childcare is supported per year	3	3	
Transparency in supplier selection	Qualitative paragraph in subchapter 2.4.4 "Responsible supply chain management"	Qualitative paragraph in the Integrated Report	
GOVERNANCE			
Formalised commitments in 2024 not shown in the Balance Sheet	As at 31.12.2024, commitments related to open orders amounted to €51,010,635 and commitments related to pending purchase procedures amounted to €20,554,878, for an overall total of €71,565,494	As at 31.12.2023, commitments related to open orders amounted to €47,538,194 and commitments related to pending purchase procedures amounted to €20,179,653, for an overall total of €67,717,847.	
Other economic and financial data	See paragraph in subchapter 2.2.1 "Financial Capital"	See paragraph in subchapter 2.2.1 "Financial Capital"	
Revenues from commercial events	€5,740	€35,339	

PARTNERSHIPS, NETWORKING AND STAKEHOLDER ENGAGEMENT

KPIs	2024 DATA / REFERENCES	2023 DATA / REFERENCES	NOTES
Number of partnerships and collaborations with universities/ IRCCS/research centres/industry	14	18	
Number of research infrastructure development projects co-managed with suppliers	0	1	
Number of institutional initiatives	18	17	
Number of initiatives developed in partnership with other organisations in the MIND area	26	12	
Number of partnerships with other relevant stakeholders	0	1	
Press office activity indicators	972	1.348	
Social media indicators	Followers on social media: 51,261	Followers on social media: 43,750	
Number of newsletter subscribers	1,459	1,246	
Number of website single users	138,342	N/A	
Number of website visits	249,737	N/A	
News on website	50	30	
Internal communication campaigns	49	46	
No. of external commercial events	5	13	

EFFECTIVENESS AND EFFICIENCY OF PROCESSES

KPIs	2024 DATA / REFERENCES	2023 DATA / REFERENCES	NOTES
% of development of Digital transformation and PMO projects	Qualitative data in subchapter 2.3.5 "Crosscutting objectives"	Data Governance: 75% Cyber Security: 81% IT Governance: 98% PMO: 100% IT Protocol Management System: 100% HR Travel: 95% Warehouse: 100%	
Number of HT projects monitored with the Status Reporting system	Qualitative data in subchapter 2.3.5 "Crosscutting objectives"	15	
% of incident resolution in Campus areas (Buildings, furniture, laboratory equipment)	388 97% resolved as at 31.12	457 100% resolved as at 31.12	

GRI

4.2 GRI Tables

GRI 2-7 - EMPLOYEES

	2022	2023	2024	CHANGE % (22-24)
TOTAL NUMBER OF EMPLOYEES	**250**	**280**	**340**	36.00%
PERMANENT CONTRACT	**173**	**170**	**161**	-6.94%
OF WHICH MEN	74	74	72	-2.70%
OF WHICH WOMEN	99	96	89	-10.10%
TEMPORARY CONTRACT	**77**	**110**	**179**	132.47%
OF WHICH MEN	38	55	86	126.32%
OF WHICH WOMEN	39	55	93	138.46%
FULL-TIME CONTRACT	**243**	**271**	**331**	36.21%
OF WHICH MEN	109	127	155	42.20%
OF WHICH WOMEN	134	144	176	31.34%
PART-TIME CONTRACT	**7**	**9**	**9**	28.57%
OF WHICH MEN	3	3	3	0.00%
OF WHICH WOMEN	4	6	6	50.00%

GRI 2-8 - WORKERS WHO ARE NOT EMPLOYEES

	2022	2023	2024
TOTAL NUMBER OF WORKERS WHO ARE NOT EMPLOYEES	80	115	152

GRI 2-21 - ANNUAL TOTAL COMPENSATION RATIO

	2022	2023	2024
ANNUAL TOTAL COMPENSATION FOR THE ORGANISATION'S HIGHEST-PAID INDIVIDUAL	-	181,714.00	240,000.00
MEDIAN ANNUAL TOTAL COMPENSATION FOR ALL EMPLOYEES (EXCLUDING THE HIGHEST-PAID INDIVIDUAL)	-	43,766.00	44,117.06
ANNUAL TOTAL RATIO	5.00	4	5

	2022	2023	2024
PERCENTAGE INCREASE IN ANNUAL TOTAL COMPENSATION FOR THE ORGANISATION'S HIGHEST-PAID INDIVIDUAL	-	-	32
MEDIAN PERCENTAGE INCREASE IN ANNUAL TOTAL COMPENSATION FOR ALL EMPLOYEES (EXCLUDING THE HIGHEST-PAID INDIVIDUAL)	-	-	1
ANNUAL TOTAL RATIO	-	-	39.99

GRI 2-30 – COLLECTIVE BARGAINING AGREEMENTS

	2022	2023	2024
TOTAL NUMBER OF EMPLOYEES COVERED BY COLLECTIVE BARGAINING AGREEMENTS	250	280	340
TOTAL NUMBER OF EMPLOYEES	250	280	340
PERCENTAGE OF EMPLOYEES COVERED BY COLLECTIVE BARGAINING AGREEMENTS	100.00%	100.00%	100.00%

GRI 201-1 – DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED

DETERMINATION OF ECONOMIC VALUE DIRECTLY GENERATED AND DISTRIBUTED [€]	ECONOMIC PERFORMANCE		
	2022	2023	2024
OTHER REVENUE	65,779,053	66,609,077	79,790,539
FINANCIAL INCOME AND INTEREST	-	-	2,039
ECONOMIC VALUE GENERATED	**65,779,053**	**66,609,077**	**79,792,578**
OPERATING COSTS	34,628,869	28,357,687	35,136,738
EMPLOYEE REMUNERATION	17,652,328	21,353,337	24,619,441
PUBLIC ADMINISTRATION REMUNERATION	617,441	694,085	493,601
REMUNERATION OF LENDERS	3,313	-	-
ECONOMIC VALUE DISTRIBUTED	**52,901,951**	**50,405,109**	**60,249,780**
AMORTISATION/DEPRECIATION, WRITE-DOWNS AND ADJUSTMENTS	12,837,770	15,853,076	19,182,497
PROVISIONS FOR RISKS AND OTHER PROVISIONS	1,301	315,553	350,253
PROFIT FOR THE YEAR ALLOCATED TO RESERVES	38,031	35,339	10,049
ECONOMIC VALUE RETAINED	**12,877,102**	**16,203,968**	**19,542,799**

GRI 204-1 – PROPORTION OF SPENDING ON LOCAL SUPPLIERS [€]

	2022	2023	2024
TOTAL BUDGET	20,482,890	16,227,267	18,611,450
SPENDING ON LOCAL SUPPLIERS (ITALY)	20,126,349	14,623,896	17,632,452
SPENDING ON EU SUPPLIERS	36,788	673,945	318,513
SPENDING ON NON-EU SUPPLIERS	319,752	929,426	660,485
PERCENTAGE OF BUDGET SPENT ON LOCAL SUPPLIERS (ITALY)	98.26%	90.12%	94.74%
PERCENTAGE OF BUDGET SPENT ON EU SUPPLIERS	0.18%	4.15%	1.71%
PERCENTAGE OF BUDGET SPENT ON NON-EU SUPPLIERS	1.56%	5.73%	3.55%

GRI 302-1 – ENERGY CONSUMPTION WITHIN THE ORGANISATION

	ENERGY CONSUMPTION							
	Required details (R = renewable source, NR = non-renewable source)							
	R/NR	QL/QT	UOM	2022	GJ 2022	2023	GJ 2023	2024	GJ 2024
DIESEL CONSUMPTION PER GENSET	NR	QT	l	2,600	93.1	1,800	64.4	3,400	123.60
CONSUMPTION OF ELECTRICITY PURCHASED FROM THE GRID, FROM NON-RENEWABLE SOURCES	NR	QT	MWh	613.36	2,208.1	1,625.23	5,850.83	10,139.29	36,501.45
CONSUMPTION OF ELECTRICITY PURCHASED FROM THE GRID, FROM RENEWABLE SOURCES	R	QT	MWh	7,879.45	28,366.02	7,028.42	25,302.31	-	-
TOTAL CONSUMPTION IN GJ					**30,667.2**		**31,217.6**		**36,625.1**

GRI 302-3 – ENERGY INTENSITY

ENERGY INTENSITY (DENOMINATORS)

	Unit of Measurement	2022	2023	2024
TOTAL SQUARE METRES	m^2	20,204	20,204	20,396
TOTAL NUMBER OF EMPLOYEES	people	250	280	340

ENERGY INTENSITY

	Unit of Measurement	2022	2023	2024
TOTAL ENERGY CONSUMPTION	GJ	30,574.11	31,250.35	36,625.05
INTENSITY PER EMPLOYEE	GJ/people	122.3	111.6	107.7
ENERGY INTENSITY PER m^2	GJ/m^2	1.51	1.55	1.80

GRI 303-3 – TOTAL WATER WITHDRAWAL

THIRD-PARTY WATER WITHDRAWALS (groundwater suppliers in megalitres)	2022		2023*		2024*	
	Total	of which: from water-stressed areas	Total	of which: from water-stressed areas	Total	of which: from water-stressed areas
THIRD-PARTY WATER SUPPLIERS (groundwater)	**3.01**	**3.01**	**8.44**	**8.44**	**9.53**	**9.53**
OF WHICH: FRESH WATER (≤1,000 mg/l total dissolved solids)	3.01	3.01	8.44	8.44	9.53	9.53
OF WHICH: OTHER WATER TYPES (>1,000 mg/l total dissolved solids)	-	-	-	-	-	-

*for 2023 and 2024, water stress is considered medium/low (source: Acqueduct Water Risk Atlas)

GRI 303-4 – WATER DISCHARGE

WATER DISCHARGE BY SOURCE AND BY TYPE (in megalitres)	2022		2023*		2024*	
	Total	of which: from water-stressed areas	Total	of which: from water-stressed areas	Total	of which: from water-stressed areas
THIRD-PARTY WATER SUPPLIERS	**3.00**	**3.00**	**8.43**	**8.43**	**9.52**	**9.52**
OF WHICH: FRESH WATER (≤1,000 mg/l total dissolved solids)	3.00	3.00	8.43	8.43	9.52	9.52
TOTAL WATER DISCHARGE (in megalitres)	**3.00**	**3.00**	**8.43**	**8.43**	**9.52**	**9.52**

*for 2023 and 2024, water stress is considered medium/low (source: Acqueduct Water Risk Atlas)

GRI 303-5 – WATER CONSUMPTION

TOTAL WATER CONSUMPTION (in megalitres)	2022		2023		2024	
	Total	of which: from water-stressed areas	Total	of which: from water-stressed areas	Total	of which: from water-stressed areas
TOTAL WATER CONSUMPTION	0.004	0.004	0.006	0.006	0.007	0.007

GRI 305 – EMISSIONS

EMISSIONS	Unit of Measurement	2022	2023	2024
SCOPE 1	tons CO_2 eq	6.65	385.66	715.6
SCOPE 2 (location-based)	tons CO_2 eq	2,623.43	2,681.45	4,428.8
SCOPE 2 (market-based)	tons CO_2 eq	280.04	755.32	5,075.4

GRI 306 – WASTE

				2022				2023			2024		
	WASTE COMPOSITION		UoM	WASTE GENERATED	WASTE DIVERTED FROM DISPOSAL (306-4a)	WASTE DIRECTED TO DISPOSAL (306-5a)	WASTE GENERATED	WASTE DIVERTED FROM DISPOSAL (306-4A)	WASTE DIRECTED TO DISPOSAL (306-5A)	WASTE GENERATED	WASTE DIVERTED FROM DISPOSAL (306-4a)	WASTE DIRECTED TO DISPOSAL (306-5a)
WASTE FROM ORGANIC SOLVENTS	070704*	Other organic solvents, washing solutions and mother liquors	Kg	-	-	-	-	-	-	364.00	-	364.00
REFRIGERANTS	140601*	Chlorofluorocarbons, HCFCs, HFCs	Kg	-	-	-	-	-	-	42.00	42.00	-
WASTE PACKAGING, ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED	150103	Wood packaging	Kg	-	-	-	-	-	-	681.00	681.00	-
	150106	Mixed material packaging	Kg	2,132.00	1,279.20	852.80	1.463,00	877.80	585.20	2,589.00	1,553.40	1,035.60
	150110*	Packaging containing residues of or contaminated by hazardous substances.	Kg	113.00	-	113.00	195.00	-	195.00	296.00	-	296.00
	150202*	Absorbents, filter materials (including oil filters not otherwise specified), rags and protective clothing, contaminated with hazardous substances.	Kg	-	-	-	-	-	-	10.00	-	10.00
WASTES NOT OTHERWISE SPECIFIED IN THE LIST	160214	Discarded equipment, other than those mentioned in 16 02 09 to 16 02 13	Kg	274.00	219.20	54.80	485.00	388.00	97.00	-	-	-
	160304	Inorganic wastes other than those mentioned in 16 03 03	Kg	739.00	-	739.00	1,435.00	-	1,435.00	1,412.00	-	1,412.00
	160601*	Lead-acid batteries	Kg	-	-	-	2,400.00	2,400.00	-	-	-	-
	160306	Organic wastes other than those mentioned in 16 03 05	Kg	89.00	-	89.00	-	-	-	-	-	-

GRI 306 – WASTE

				2022			2023			2024		
	WASTE COMPOSITION		UoM	WASTE GENERATED	WASTE DIVERTED FROM DISPOSAL (306-4a)	WASTE DIRECTED TO DISPOSAL (306-5a)	WASTE GENERATED	WASTE DIVERTED FROM DISPOSAL (306-4A)	WASTE DIRECTED TO DISPOSAL (306-5A)	WASTE GENERATED	WASTE DIVERTED FROM DISPOSAL (306-4a)	WASTE DIRECTED TO DISPOSAL (306-5a)
WASTE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES (INCLUDING SOIL FROM CONTAMINATED SITES)	170603*	Other insulation materials containing or consisting of hazardous substances	Kg	-	-	-	70.00	-	70.00	53.00	-	53.00
WASTES FROM HUMAN AND ANIMAL HEALTH CARE OR RELATED RESEARCH (EXCEPT KITCHEN AND RESTAURANT WASTES NOT ARISING FROM IMMEDIATE HEALTH CARE)	180103*	Waste that must be collected and disposed of using special precautions to prevent the spread of infection	Kg	5,062.00	-	5,062.00	8,147.00	-	8,147.00	12,369.00	-	12,369.00
	180106*	Hazardous chemicals or chemicals containing hazardous substances	Kg	3,664.00	-	3,664.00	5,565.00	-	5,565.00	5,811.00	-	5,811.00
	180107	Chemicals other than those mentioned in 18 01 06	Kg	-	-	-	218.00	-	218.00	1,310.00	-	1,310.00
WASTES FROM WASTEWATER TREATMENT PLANTS, OFF-GRID WASTEWATER TREATMENT PLANTS, AS WELL AS FROM WATER PURIFICATION AND ITS PREPARATION FOR INDUSTRIAL USE	190905	Saturated or exhausted ion exchange resins	Kg	-	-	-	180.00	-	180.00	93.00	-	93.00
MUNICIPAL WASTE (HOUSEHOLD WASTE AND SIMILAR WASTE FROM COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL ACTIVITIES) INCLUDING SEPARATELY COLLECTED WASTE	200307	Bulky waste	Kg	21,475.00	12,885.00	8,590.00	11,610.00	6,966.00	4,644.00	350.00	210.00	140.00
	Total waste		**Kg**	**33,548.00**	**14,383.40**	**19,164.60**	**31,768.00**	**10,631.80**	**21,136.20**	**25,380.00**	**2,486.40**	**22,893.60**

GRI 306 – WASTE

2022

WASTE GENERATED	TOTAL WASTE GENERATED	OF WHICH NOT SENT TO LANDFILL						OF WHICH SENT TO LANDFILL						
	QUANTITY (TON)	QUANTITY (TON)	RECOVERY OPERATIONS			WHERE RECOVERY TAKES PLACE		QUANTITY (TON)	DISPOSAL OPERATIONS				WHERE DISPOSAL TAKES PLACE	
			WASTE PREPARED FOR REUSE	WASTE FOR RECYCLING	WASTE FOR OTHER RECOVERY OPERATIONS	ONSITE	OFFSITE		INCINERATED WASTE (WITH ENERGY RECOVERY)	INCINERATED WASTE (WITHOUT ENERGY RECOVERY)	WASTE SENT TO LANDFILL	WASTE FOR OTHER DISPOSAL OPERATIONS	ONSITE	OFFSITE
HAZARDOUS WASTE	**8.84**	**-**	**-**	**-**	**-**	**-**	**-**	**8.84**	**-**	**-**	**-**	**-**	**-**	**-**
150110*	0.11	-	-	-	-	-	-	0.11	Yes	-	-	-	-	Yes
180103*	5.06	-	-	-	-	-	-	5.06	Yes	-	-	-	-	Yes
180106*	3.66	-	-	-	-	-	-	3.66	-	Yes	-	-	-	Yes
NON-HAZARDOUS WASTE	**24.71**	**14.38**	**-**	**-**	**-**	**-**	**-**	**10.33**	**-**	**-**	**-**	**-**	**-**	**-**
150106	2.13	1.28	-	Yes	-	-	Yes	0.85	Yes	-	-	-	-	Yes
160214	0.27	0.22	-	Yes	-	-	Yes	0.06	Yes	-	-	-	-	Yes
160304	0.74	-	-	-	-	-	-	0.74	-	Yes	-	-	-	Yes
160306	0.09	-	-	-	-	-	-	0.09	-	Yes	-	-	-	Yes
200307	21.48	12.89	-	Yes	-	-	Yes	8.59	Yes	-	-	-	-	Yes
TOTAL WASTE GENERATED	**33.55**													

GRI 306 – WASTE

2023

WASTE GENERATED	TOTAL WASTE GENERATED	OF WHICH NOT SENT TO LANDFILL						OF WHICH SENT TO LANDFILL						
	QUANTITY (TON)	QUANTITY (TON)	RECOVERY OPERATIONS			WHERE RECOVERY TAKES PLACE		QUANTITY (TON)	DISPOSAL OPERATIONS				WHERE DISPOSAL TAKES PLACE	
			WASTE PREPARED FOR REUSE	WASTE FOR RECYCLING	WASTE FOR OTHER RECOVERY OPERATIONS	ONSITE	OFFSITE		INCINERATED WASTE (WITH ENERGY RECOVERY)	INCINERATED WASTE (WITHOUT ENERGY RECOVERY)	WASTE SENT TO LANDFILL	WASTE FOR OTHER DISPOSAL OPERATIONS	ONSITE	OFFSITE
HAZARDOUS WASTE	**16.38**	**2.40**	**-**	**-**	**-**	**-**	**-**	**13.98**	**-**	**-**	**-**	**-**	**-**	**-**
150110*	0.20	-	-	-	-	-	-	0.20	Yes	-	-	-	-	Yes
160601*	2.40	2.40	-	Yes	-	-	Yes	-	-	-	-	-	-	-
170603*	0.07	-	-	-	-	-	-	0.07	Yes	-	-	-	-	Yes
180103*	8.15	-	-	-	-	-	-	8.15	Yes	-	-	-	-	Yes
180106*	5.57	-	-	-	-	-	-	5.57	-	Yes	-	-	-	Yes
NON-HAZARDOUS WASTE	**15.39**	**8.23**	**-**	**-**	**-**	**-**	**-**	**7.16**	**-**	**-**	**-**	**-**	**-**	**-**
150106	1.46	0.88	-	Yes	-	-	Yes	0.59	Yes	-	-	-	-	Yes
160214	0.49	0.39	-	Yes	-	-	Yes	0.10	Yes	-	-	-	-	Yes
160304	1.44	-	-	-	-	-	-	1.44	-	Yes	-	-	-	Yes
180107	0.22	-	-	-	-	-	-	0.22	-	Yes	-	-	-	Yes
190905	0.18	-	-	-	-	-	-	0.18	Yes	-	-	-	-	Yes
200307	11.61	6.97	-	Yes	-	-	Yes	4.64	Yes	-	-	-	-	Yes
TOTAL WASTE GENERATED	**31.77**													

GRI 306 – WASTE

2024

WASTE GENERATED	TOTAL WASTE GENERATED	OF WHICH NOT SENT TO LANDFILL						OF WHICH SENT TO LANDFILL						
	QUANTITY (TON)	QUANTITY (TON)	RECOVERY OPERATIONS			WHERE RECOVERY TAKES PLACE		QUANTITY (TON)	DISPOSAL OPERATIONS				WHERE DISPOSAL TAKES PLACE	
			WASTE PREPARED FOR REUSE	WASTE FOR RECYCLING	WASTE FOR OTHER RECOVERY OPERATIONS	ONSITE	OFFSITE		INCINERATED WASTE (WITH ENERGY RECOVERY)	INCINERATED WASTE (WITHOUT ENERGY RECOVERY)	WASTE SENT TO LANDFILL	WASTE FOR OTHER DISPOSAL OPERATIONS	ONSITE	OFFSITE
HAZARDOUS WASTE	**18.95**	**0.04**	**-**	**-**	**-**	**-**	**-**	**18.90**	**-**	**-**	**-**	**-**	**-**	**-**
070704*	0.36	-	-	-	-	-	-	0.36	Yes	-	-	-	-	Yes
140601*	0.04	0.04	-	Yes	-	-	Yes	-	-	-	-	-	-	-
150110*	0.30	-	-	-	-	-	-	0.30	Yes	-	-	-	-	Yes
150202*	0.01	-	-	-	-	-	-	0.01	Yes	-	-	-	-	Yes
170603*	0.05	-	-	-	-	-	-	0.05	-	-	Yes	-	-	Yes
180103*	12.37	-	-	-	-	-	-	12.37	Yes	-	-	-	-	Yes
180106*	5.81	-	-	-	-	-	-	5.81	-	Yes	-	-	-	Yes
NON-HAZARDOUS WASTE	**6.44**	**2.44**	**-**	**-**	**-**	**-**	**-**	**3.99**	**-**	**-**	**-**	**-**	**-**	**-**
150103	0.68	0.68	-	Yes	-	-	Yes	-	-	-	-	-	-	-
150106	2.59	1.55	-	Yes	-	-	Yes	1.04	Yes	-	-	-	-	Yes
160304	1.41	-	-	-	-	-	-	1.41	-	Yes	-	-	-	Yes
180107	1.31	-	-	-	-	-	-	1.31	-	Yes	-	-	-	Yes
190905	0.09	-	-	-	-	-	-	0.09	Yes	-	-	-	-	Yes
200307	0.35	0.21	-	Yes	-	-	Yes	0.14	Yes	-	-	-	-	Yes
TOTAL WASTE GENERATED	**25.38**													

GRI 401-1 – NEW EMPLOYEE HIRES AND EMPLOYEE TURNOVER

2022

	No. OF EMPLOYEES	No. OF NEW HIRES	No. OF TERMINATIONS	% NEW HIRES	% TURNOVER
WOMEN	**137**	**64**	**11**	**47%**	**8%**
< 30 years	NA	NA	NA	-	-
30-49 years	NA	NA	NA	-	-
> 49 years	NA	NA	NA	-	-
MEN	**113**	**46**	**8**	**41%**	**7%**
< 30 years	NA	NA	NA	-	-
30-49 years	NA	NA	NA	-	-
> 49 years	NA	NA	NA	-	-
TOTAL	**250**	**110**	**19**	**44%**	**8%**
< 30 years	-	-	-	-	-
30-49 years	-	-	-	-	-
> 49 years	-	-	-	-	-

2023

	No. OF EMPLOYEES	No. OF NEW HIRES	No. OF TERMINATIONS	% NEW HIRES	% TURNOVER
WOMEN	**151**	**31**	**18**	**21%**	**12%**
< 30 years	13	10	5	77%	38%
30-49 years	125	21	10	17%	8%
> 49 years	13	-	3	0%	23%
MEN	**129**	**27**	**10**	**21%**	**8%**
< 30 years	15	11	1	73%	7%
30-49 years	99	15	7	15%	7%
> 49 years	15	1	2	7%	13%
TOTAL	**280**	**58**	**28**	**21%**	**10%**
< 30 years	28	21	6	75%	21%
30-49 years	224	36	17	16%	8%
> 49 years	28	1	5	4%	18%

2024

	No. OF EMPLOYEES	No. OF NEW HIRES	No. OF TERMINATIONS	% NEW HIRES	% TURNOVER
WOMEN	**182**	**46**	**14**	**25%**	**8%**
< 30 years	16	11	2	69%	13%
30-49 years	145	32	12	22%	8%
> 49 years	21	3	-	14%	0%
MEN	**158**	**42**	**14**	**27%**	**9%**
< 30 years	12	5	1	42%	8%
30-49 years	120	28	12	23%	10%
> 49 years	26	9	1	35%	4%
TOTAL	**340**	**88**	**28**	**26%**	**8%**
< 30 years	28	16	3	57%	11%
30-49 years	265	60	24	23%	9%
> 49 years	47	12	1	26%	2%

GRI 401-2 – BENEFITS PROVIDED TO FULL-TIME EMPLOYEES THAT ARE NOT PROVIDED TO TEMPORARY OR PART-TIME EMPLOYEES

	2022	2023	2024
Life insurance	-	-	16
Healthcare (FASI + FASCHIM funds)	-	-	124
Disability and invalidity cover	-	-	156
Parental leave	-	18	9
Other - HT parental leave	-	-	2
Mandatory maternity leave	-	-	5
Pension contributions (FONCHIM + PREVINDAI funds)	-	112	78
Shareholdings	-	-	-
Other - Extra-professional policy	-	-	156

GRI 401-3 A, B – PARENTAL LEAVE

	2022			2023			2024		
	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL
Employees that were entitled to parental leave	113	137	**250**	129	151	**280**	158	182	**340**
Employees that took parental leave	1	5	**6**	2	16	**18**	3	18	**21**
Employees who returned to work in the reporting period after parental leave ended	-	-	**-**	-	-	**-**	2	7	**9**
Employees who should have returned to work in the reporting period after parental leave ended	-	-	**-**	-	-	**-**	2	8	**10**
of which employees who returned to work after parental leave ended and were still employed 12 months later	-	-	**-**	-	-	**-**	2	7	**9**

GRI 403-5 – WORKER TRAINING ON OCCUPATIONAL HEALTH AND SAFETY

2022			2023			2024		
TRAINING DELIVERED	No. OF HOURS DELIVERED	No. OF PARTICIPANTS	TRAINING DELIVERED	No. OF HOURS DELIVERED	No. OF PARTICIPANTS	TRAINING DELIVERED	No. OF HOURS DELIVERED	No. OF PARTICIPANTS
General training	683	250	General training	808	275	General training	404	101
Specific training	-	-	Specific training	-	-	Specific training	448	112
[Any other type of training]	-	-	[Any other type of training]	-	-	Onboarding	212	156
						Emergency Team	484	125
TOTAL	**683**	**250**		**808**	**275**		**1,548**	**494**

GRI 403-8 – WORKERS COVERED BY AN OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

NUMBER OF EMPLOYEES AND NON-EMPLOYEES COVERED BY AN OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

	2022	2023	2024
No. of employees covered by this system	-	-	340
No. of non-employees covered by this system	-	-	152
TOTAL	-	-	**492**

% OF EMPLOYEES AND NON-EMPLOYEES COVERED BY AN OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

	2022	2023	2024
% of employees covered by this system	-	-	100%
% of non-employees covered by this system	-	-	100%
TOTAL	-	-	**100%**

NUMBER OF EMPLOYEES AND NON-EMPLOYEES COVERED BY AN OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM AND AUDITED INTERNALLY

	2022	2023	2024
No. of employees covered by this system	-	-	340
No. of non-employees covered by this system	-	-	152
TOTAL	-	-	**492**

% OF EMPLOYEES AND NON-EMPLOYEES COVERED BY AN OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM AND AUDITED INTERNALLY

	2022	2023	2024
% of employees covered by this system and audited internally	-	-	100%
% of non-employees covered by this system and audited internally	-	-	100%
TOTAL	-	-	**100%**

GRI 403-9 A –WORK-RELATED INJURIES

WORK-RELATED INJURIES

	2022	2023	2024
Number of deaths resulting from accidents at work	-	-	-
Rate of deaths resulting from accidents at work	-	-	-
Number of work-related injuries with serious consequences (excluding deaths)	-	-	-
Rate of occupational accidents with serious consequences (excluding deaths)	-	-	-
Number of recordable work-related injuries	4	3	3
Rate of recordable work-related injuries	-	1.40	1.18
Number of hours worked	-	430,062	510,154

TYPE OF WORK-RELATED INJURY

	2022	2023	2024
Number of injuries caused by machinery: Mechanical cause (plant, machines, equipment): coming into contact with intrinsically dangerous parts of machines, projections of objects	-	-	-
Number of injuries Ergonomic causes: incorrect handling of loads, forced postures, etc.	-	-	-
Number of injuries Road traffic accidents	-	-	2
TOTAL	-	-	**2**

NEAR MISS

	2022	2023	2024
Number of near misses	-	3	10

GRI 404-1 – AVERAGE HOURS OF TRAINING PER YEAR PER EMPLOYEE[26]

EMPLOYEES BY GENDER AND CATEGORY

	2022			2023			2024		
	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL
Senior managers	-	-	-	21	16	37	12	12	24
Middle managers	-	-	-	30	31	61	13	39	52
Office workers	-	-	-	78	104	182	35	84	119
TOTAL	**112**	**138**	**250**	**129**	**151**	**280**	**60**	**135**	**195**

TRAINING HOURS BY GENDER AND PROFESSIONAL CATEGORY

	2022			2023			2024		
	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL
Senior managers	-	-	-	302	243	545	92	83	175
Middle managers	-	-	-	422	255	677	293	713	1,006
Office workers	-	-	-	1,926	2,406	4,332	971	2,038	3,009
TOTAL	**-**	**-**	**-**	**2,649**	**2,904**	**5,553**	**1,356**	**2,834**	**4,190**

AVERAGE TRAINING HOURS

	2022	2023	2024
Per Employee	-	19.8	21.5
of which Men	-	20.5	22.6
of which Women	-	19.2	21.0

AVERAGE TRAINING HOURS BY GENDER AND PROFESSIONAL CATEGORY

	2022		2023		2024	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
Senior managers	-	-	14.4	15.2	7.67	6.92
Middle managers	-	-	14.1	8.2	22.54	18.28
Office workers	-	-	24.7	23.1	27.74	24.26

[26]The training hours included refer solely to scientific/administrative and non-compulsory training hours.

GRI 405-1 A – DIVERSITY OF GOVERNANCE BODIES AND EMPLOYEES

GOVERNANCE BODIES BY GENDER

	2022		2023		2024	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
Supervisory Board	6	6	6	6	4	8
Management Committee	3	1	4	1	4	1
Board of Auditors	1	2	1	2	1	2
Scientific Committee	10	4	11	4	11	4
Supervisory Body (ODV)	-	-	3	-	3	-

GOVERNANCE BODIES BY GENDER (%)

	2022		2023		2024	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
Supervisory Board	50%	50%	50%	50%	33%	67%
Management Committee	75%	25%	80%	20%	80%	20%
Board of Auditors	33%	67%	33%	67%	33%	67%
Scientific Committee	71%	29%	73%	27%	73%	27%
Supervisory Body (ODV)	-	-	100%	-	100%	-

GOVERNANCE BODIES BY AGE

	2023			2024		
	< 30 YEARS	30-50 YEARS	> 50 YEARS	< 30 YEARS	30-50 YEARS	> 50 YEARS
Supervisory Board	-	1	11	-	1	11
Management Committee	-	-	5	-	-	5
Board of Auditors	-	1	2	-	1	2
Scientific Committee	-	-	15	-	-	15
Supervisory Body (ODV)	-	-	3	-	-	3

GOVERNING BODIES BY AGE (%)

	2023			2024		
	< 30 YEARS	30-50 YEARS	> 50 YEARS	< 30 YEARS	30-50 YEARS	> 50 YEARS
Supervisory Board	-	8%	92%	-	8%	92%
Management Committee	-	-	100%	-	-	100%
Board of Auditors	-	33%	67%	-	33%	67%
Scientific Committee	-	-	100%	-	-	100%
Supervisory Body (ODV)	-	-	100%	-	-	100%

GRI 405-1 B

EMPLOYEES BY PROFESSIONAL FIGURE AND GENDER

	2022		2023		2024	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
Senior managers	-	-	21	16	25	18
Middle managers	-	-	30	31	32	31
Office workers	-	-	78	104	101	133
Total per professional category	**-**	**-**	**129**	**151**	**158**	**182**
TOTAL	**-**		**280**		**340**	

EMPLOYEES BY PROFESSIONAL FIGURE AND GENDER (%)

	2022		2023		2024	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
Senior managers	-	-	57%	43%	58%	42%
Middle managers	-	-	49%	51%	51%	49%
Office workers	-	-	43%	57%	43%	57%

EMPLOYEES BY PROFESSIONAL FIGURE AND AGE

	2022			2023			2024		
	< 30 YEARS	30-50 YEARS	> 50 YEARS	< 30 YEARS	30-50 YEARS	> 50 YEARS	< 30 YEARS	30-50 YEARS	> 50 YEARS
Senior managers	-	-	-	-	28	9	-	27	16
Middle managers	-	-	-	-	50	11	-	47	16
Office workers	-	-	-	28	146	8	28	191	15
Total per professional category	**-**	**-**	**-**	**28**	**224**	**28**	**28**	**265**	**47**
TOTAL		**-**			**280**			**340**	

EMPLOYEES BY PROFESSIONAL FIGURE AND AGE (%)

	2022			2023			2024		
	< 30 YEARS	30-50 YEARS	> 50 YEARS	< 30 YEARS	30-50 YEARS	> 50 YEARS	< 30 YEARS	30-50 YEARS	> 50 YEARS
Senior managers	-	-	-	-	76%	24%	-	63%	37%
Middle managers	-	-	-	-	82%	18%	-	75%	25%
Office workers	-	-	-	15%	80%	4%	12%	82%	6%

GRI 405-2 – RATION OF BASIC SALARY AND REMUNERATION OF WOMEN TO MEN

	2022			2023			2024		
CATEGORY	WOMEN	MEN	RATIO	WOMEN	MEN	RATIO	WOMEN	MEN	RATIO
Office workers	16.3	16.29	1.00	16.43	16.88	0.97	16.88	17.68	0.95
Middle managers	27.55	27.33	1.01	27.27	27.55	0.99	24.59	25.96	0.95
Senior managers	47.5	57.65	0.82	41.23	49.41	0.83	41.8	49.82	0.84

GRI

4.3 GRI Content Index

The following table shows the performance indicators contained in the GRI.

Declaration of use	HT submitted its report in accordance with GRI Standards for the period going from 01.01.24 to 31.12.24
GRI 1 used	GRI 1 - Foundation 2021
Relevant GRI sector standards	To date, there are no GRI Sector Standards relevant to HT's activity

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION		NOTES
			OMITTED REQUIREMENTS	REASON	EXPLANATION	
General disclosures						
GRI 2 - General disclosures 2021	2-1 Organizational details	- Subchapter 1.1 '*Mission, vision and values*' - Subchapter 1.2 '*Research Centres, Scientific Facilities and Flagship Research Programmes*' - Subchapter 2.2.3 '*Infrastructural Capital*'				
	2-2 Entities included in the organization's sustainability reporting	- Subchapter 1.1 '*Mission, vision and values*'				
	2-3 Reporting period, frequency and contact point	Methodology note				
	2-4 Restatements of Information	N/A				With reference to water consumption, water consumption values for 2022 and 2023 were recalculated as the difference between water withdrawals and discharges.
	2-5 External assurance	- Methodology note - Sub-chapter '*Independent auditor's report on the Integrated Report*'				
	2-6 Activities, value chain and other business relationships	- Subchapter 1.2 '*Research Centres, Scientific Facilities and Flagship Research Programmes*' - Subchapter 2.2.1 '*Financial Capital*' - Subchapter 2.2.4 '*Relational Capital*'				

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION		NOTES
			OMITTED REQUIREMENTS	REASON	EXPLANATION	
GRI 2 - General disclosures 2021	2-7 Employees	- Subchapter 2.2.2 '*Human Capital*' - Subchapter 4.2 '*GRI tables*', - GRI 2-7 Employees				The method adopted involves calculating the number of employees and non-employees in terms of headcount at the end of the reporting period.
	2-8 Workers who are not employees	- Subchapter 2.2.2 '*Human Capital*' - Subchapter 4.2 '*GRI Tables*' - GRI 2-8 Non employees				
	2-9 Governance structure and composition	Subchapter 1.4 '*Governance and organisation*'				
	2-10 Nomination and selection of the highest governance body	Subchapter 1.4 '*Governance and organisation*'				
	2-11 Chair of the highest governance body	Subchapter 1.4 '*Governance and organisation*'				
	2-12 Role of the highest governance body in overseeing the management of impacts	Subchapter 1.4 '*Governance and organisation*'				
	2-13 Delegation of responsibility for managing impacts	Subchapter 1.4 '*Governance and organisation*'				
	2-14 Role of the highest governance body in sustainability reporting	Subchapter 1.4 '*Governance and organisation*'				
	2-15 Conflicts of interest	Subchapter 1.4 '*Governance and organisation*'				
	2-16 Communication of critical concerns	Subchapter 1.4 '*Governance and organisation*'				Comments, requests, opinions and suggestions for improvement relating to HT's sustainability activities and the information contained in this Integrated Report may be sent to the following dedicated email address: ht-dept-finance@fht.org. For information on how Code of Ethics violations can be reported and on whistleblower protection, please refer to the Code of Ethics published on HT's website: https://humantechnopole.it/en/
	2-17 Collective knowledge of the highest governance body	- Subchapter 1.4 '*Governance and organisation*' - Subchapter 2.2.2 '*Human Capital*' and 2.2.4 '*Relational Capital*'				

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION		NOTES
			OMITTED REQUIREMENTS	REASON	EXPLANATION	
	2-18 Evaluation of the performance of the highest governance body	Subchapter 1.4 '*Governance and organisation*'				
	2-19 Remuneration policies	Remunerations are determined in accordance with Article 6 of Prime Ministerial Decree No. 28 of 27 February 2018, implementing Article 1(123) of Law No. 232 of 2016				
	2-20 Process to determine remuneration	Remunerations are determined in accordance with Article 6 of Prime Ministerial Decree No. 28 of 27 February 2018, implementing Article 1(123) of Law No. 232 of 2016				
	2-21 Annual total compensation ratio	- Subchapter 4.2 '*GRI Tables*', GRI 2-21 Annual total compensation ratio				
	2-22 Statement on sustainable development strategy	*Letter to stakeholders*				
GRI 2 - General disclosures 2021	2-23 Policy commitments	- Subchapter 1.1 '*Mission, vision and values*' - Subchapter 1.4 '*Governance and organisation*' - Subchapter 2.4 '*Responsible and sustainable approach*'	Information not available/incomplete	HT has not put in place specific formalised policies on the three topics mentioned by the Standard and plans to formalise them in the short term	The Foundation has adopted a process to identify, prevent and mitigate actual and potential impacts by prioritising them as described in sub-chapter 2.1 'Stakeholder engagement and the materiality matrix' in the section 'ESG Materiality Assessment'. Mitigation measures for potential negative impacts are also determined when conclusive scientific evidence is lacking but there is sufficient reason to expect serious or irreversible damage.The issue of human rights is addressed in several internal policies and regulations as well as in the Code of Ethics and the Model pursuant to Legislative Decree No. 231 available in the 'Transparency' section of the HT website - Transparent Administration - Human Technopole
	2-24 Embedding policy commitments	Subchapter 2.4 '*Responsible and sustainable approach*'				
	2-25 Processes to remediate negative impacts	Subchapter 2.4 '*Responsible and sustainable approach*'				
	2-26 Mechanisms for seeking advice and raising concerns	Methodology note			Comments, requests, opinions and suggestions for improvement relating to HT's sustainability activities and the information contained in this Integrated Report may be sent to the following dedicated email address: ht-dept-finance@fht.org. For information on how Code of Ethics violations can be reported and on whistleblower protection, please refer to the Code of Ethics published on HT's website: https://humantechnopole.it/en/

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION		NOTES
			OMITTED REQUIREMENTS	REASON / EXPLANATION	
GRI 2 - General disclosures 2021	2-27 Compliance with laws and regulations	*See the Notes column*			With reference to the financial year 2024, there were no non-compliances with social and economic laws and/or regulations resulting in significant fines or non-pecuniary penalties
	2-28 Membership associations	Subchapter 2.2.4 '*Relational Capital*'			
	2-29 Approach to stakeholder engagement	- *Methodology note* - Subchapter 2.1 '*Stakeholder engagement and the materiality matrix*'			
	2-30 Collective bargaining agreements	Subchapter 4.2 '*GRI Tables*', GRI 2-30 Collective bargaining agreements			
GRI 3 - Material topics 2021	3-1 Process to determine material topics	Subchapter 2.1 '*Stakeholder engagement and the materiality matrix*'			
	3-2 List of material topics	Subchapter 2.1 '*Stakeholder engagement and the materiality matrix*'			
	3-3 Management of material topics	Subchapter 2.4 '*Responsible and sustainable approach*'			GRI 3-3 provides qualitative information on how each identified material topic is managed
Related material topics: **RESPONSIBLE SUPPLY CHAIN MANAGEMENT**					
GRI 201 – Economic performance 2016	201-1 Economic value generated and distributed	- Subchapter 2.2.1 '*Financial Capital*' - Subchapter 4.2 '*GRI Tables*', GRI 201-1 Economic value generated and distributed			
	201-4 Financial assistance received from government	- Subchapter 2.2.1 '*Financial Capital*'			
Related material topics **RESPONSIBLE SUPPLY CHAIN MANAGEMENT**					
GRI 204 – Procurement practices 2016	204-1 Proportion of spending on local suppliers	- Subchapter 2.2.1 '*Financial Capital*' - Subchapter 4.2 '*GRI Tables*', GRI 204-1 Proportion of spending on local suppliers			'Local' suppliers are suppliers in Italy

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			NOTES
			OMITTED REQUIREMENTS	REASON	EXPLANATION	
Related material topics: **RESPONSIBLE SUPPLY CHAIN MANAGEMENT**						
GRI 205 - Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	- Subchapter 1.4 '*Governance and organisation*' - Subchapter 2.4.4 *'Responsible supply chain management'ß*				
	205-2 -Communication and training about anti-corruption policies and procedures	*See the Notes column*	205-2 (d), (e)	Information not available/incomplete	Data on training in this area are currently not available. HT commits to the future monitoring of the requested information.	Anti-corruption policies and procedures have been distributed to all HT staff.
	205-3 Confirmed incidents of corruption and actions taken	*See the Notes column*				No incidents of corruption were confirmed in 2024
Related material topics: **ENERGY EFFICIENCY AND RESPONSIBLE CONSUMPTION**						
GRI 302 - Energy 2016	302-1 Energy consumption within the organization	- Sub-chapter 2.4.1 '*Energy efficiency and responsible consumption*' - Subchapter 4.2 '*GRI Tables*', GRI 302-1 Energy consumption within the organization				
	302-3 Energy intensity	- Sub-chapter 2.4.1 *'Energy efficiency and responsible consumption*' - Subchapter 4.2 '*GRI Tables*', GRI 302-3 Energy intensity				
Related material topics: **ENERGY EFFICIENCY AND RESPONSIBLE CONSUMPTION**						
GRI 303 - Water and Effluents 2018	303-3 Total water withdrawal	- Sub-chapter 2.4.1 '*Energy efficiency and responsible consumption'* - Subchapter 4.2 '*GRI Tables*', GRI 303-3 Total water withdrawal				
	303-4 Water discharge	- Sub-chapter 2.4.1 '*Energy efficiency and responsible consumption*' - Subchapter 4.2 '*GRI Tables*', GRI 303-4 Water discharge				
	303-5 Water consumption	- Subchapter 4.2 '*GRI Tables*', GRI 303-5 Water consumption				

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION		NOTES
			OMITTED REQUIREMENTS	REASON	EXPLANATION
Related material topics **ENERGY EFFICIENCY AND RESPONSIBLE CONSUMPTION, SUSTAINABLE ECOSYSTEM**					
GRI 305 - Emissions 2016	305-1 Direct (Scope 1) GHG emissions	- Sub-chapter 2.4.1 '*Energy efficiency and responsible consumption*' - Subchapter 4.2 '*GRI Tables*', GRI 305 Emissions			
	305-2 Energy indirect (Scope 2) GHG emissions	- Sub-chapter 2.4.1 '*Energy efficiency and responsible consumption*' - Subchapter 4.2 '*GRI Tables*', GRI 305 Emissions			
	305-3 Other indirect (Scope 3) GHG emissions	- Sub-chapter 2.4.1 *'Energy efficiency and responsible consumption'* and 2.4.12 *'Sustainable ecosystem'* - Subchapter 4.2 '*GRI Tables*', GRI 305 Emissions			
Related material topics: **EFFECTIVE WASTE MANAGEMENT**					
GRI 306 - Waste 2020	306-3 Waste generated	- Subchapter 2.4.8 '*Effective waste management*' - Subchapter 4.2 '*GRI Tables*', GRI 306 Waste			
	306-4 Waste diverted from disposal	- Subchapter 2.4.8 '*Effective waste management*' - Subchapter 4.2 '*GRI Tables*', GRI 306 Waste			
	306-5 Waste directed to disposal	- Subchapter 2.4.8 '*Effective waste management*' - Subchapter 4.2 '*GRI Tables*', GRI 306 Waste			
Related material topics: **WELFARE**					
GRI 401 - Employment 2016	401-1 New employee hires and employee turnover	- Subchapter 2.2.2 *'Human Capital'* - Subchapter 4.2 *'GRI Tables'*, GRI 401-1 New employee hires and employee turnover			
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	- Subchapter 2.2.2 *'Human Capital'* - Subchapter 2.4.11 *'Welfare'* - Subchapter 4.2 *'GRI Tables'*, GRI 401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees			
	401-3 Parental leave	- Sub-chapter 2.4.11 *"Welfare"* - Sub-chapter 4.2 *'GRI Tables'*, GRI 401-3 Parental leave			

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION		NOTES
			OMITTED REQUIREMENTS	REASON	EXPLANATION	
Related material topics: HEALTH AND SAFETY						
GRI 403 - Occupational health and safety 2018	403-5 Worker training on occupational health and safety	- Sub-chapter 2.2.2 '*Human Capital*' and 2.4.3 '*Health and safety*' - Subchapter 4.2 '*GRI Tables*', GRI 403-5 Worker training on occupational health and safety				
	403-8 Workers covered by an occupational health and safety management system	Sub-chapter 2.2.2 '*Human Capital*' and 2.4.3 '*Health and safety*'				
	403-9 Work-related injuries	- Sub-chapter 2.2.2 '*Human Capital*' and 2.4.3 '*Health and safety*' - Subchapter 4.2 '*GRI Tables*', GRI 403-9 Work-related injuries				In 2024 no accidents involving non-employee workers occurred
Related material topics: TALENT DEVELOPMENT						
GRI 404 - Training and education 2016	404-1 Average hours of training per year per employee	- Subchapter 2.2.2 '*Human Capital*' - Subchapter 4.2 '*GRI Tables*', GRI 404-1 Average hours of training per year per employee	Average training hours do not include those related to scientific training	Information not available	Different strategic KPIs are used for scientific training hours, as reported in the strategic objective of 'offering advanced scientific training to the Italian scientific community'. Monitoring of scientific training hours will be implemented in the coming years	
	404-2 Programs for upgrading employee skills and transition assistance programs	- Subchapters 2.2.2 '*Human Capital*' and 2.4.5 '*Talent Development*' - Subchapter 2.3.3 '*Offering advanced scientific training to the Italian scientific community*'				
	404-3 Percentage of employees receiving regular performance and career development reviews	- Subchapter 2.2.2 '*Human Capital*'				

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION		NOTES
			OMITTED REQUIREMENTS	REASON	EXPLANATION
Related material topics: DIVERSITY, INCLUSION AND HUMAN RIGHTS					
GRI 405 - Diversity and equal opportunity 2016	405-1 Diversity and equal opportunity	- Subchapter 2.2.2 '*Human Capital*' and 2.4.13 '*Diversity, inclusion and human rights*' - Subchapter 4.2 '*GRI Tables*', GRI 405-1 Diversity and equal opportunity			
	405-2 Ratio of basic salary and remuneration of women to men	Subchapter 4.2 '*GRI Tables*', GRI 405-2 Ratio of basic salary and remuneration of women to men			
Other material topics					
CYBERSECURITY	3-3 Management of material topics	Subchapter 2.4.2 '*Cybersecurity*'			
PROGRESS AND INNOVATION IN SCIENTIFIC RESEARCH	3-3 Management of material topics	Sub-chapter 2.4.6 '*Progress and innovation in scientific research*'			
INTEGRITY AND RESPONSIBILITY	3-3 Management of material topics	Sub-chapter 2.4.7 '*Integrity and responsibility*'			
INFRASTRUCTURE MANAGEMENT	3-3 Management of material topics	Sub-chapter 2.4.9 '*Infrastructure management*'			
INTERACTION WITH THE NATIONAL SCIENTIFIC COMMUNITY	3-3 Management of material topics	Sub-chapter 2.4.10 '*Interaction with the national scientific community*'			

05 FINANCIAL STATEMENTS

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The year 2024 was a year of further development and significant new achievements for the Human Technopole Foundation, characterised by a significant increase in internal research, a significant growth in staff and other personnel, including several PhD students and trainees, and the repurposing of the Campus infrastructure (Palazzo Italia, laboratories, scientific facilities, data centre and networking spaces).

It was also a year marked by the dissemination of specialist skills and the development of young talent through various training programmes.

In 2024, the operational phase of the National Facilities was launched, which have already performed several services for 38 projects submitted by the national scientific community.

Achievements in 2024 include scientific awards, associated with the acquisition of several external grants from national and international institutions (ERC, EC/Horizon, EMBO, AIRC, Telethon), thus supplementing the annual public grant to the Foundation.

The structuring and development of the Centre for Innovation and Technology Transfer (CITT) in the Life Sciences sector, as an internal department of the Foundation, continued.

MANAGEMENT REPORT

The 2024 financial year of the Human Technopole Foundation (hereinafter also referred to as 'HT') closed with a positive result after tax of €5,971, after provisions for IRES and IRAP taxes of €493,601. Depreciation, amortisation and write-downs of tangible and intangible assets in the amount of €19,182,497 were made.

In addition, the activities carried out in 2024 resulted in total economic commitments of €71,565,515. These commitments resulted in the recognition in the financial statements of operating grants and capital grants in the amount of over €79,790,539, relating to the portion pertaining to the year, and approximately €141,430,571 in deferred income, for the portion of commitments pertaining to future years.

In financial terms, revenues of approximately €241,598,1035 in grants were recognised in 2024 against cash outlays of approximately €73,111,687.

The Financial Statements for the year ended 31 December 2024 were prepared in accordance with Articles 2423 et seq. of the Italian Civil Code, adopting the extended form, even though the prerequisites set forth in Article 2435-bis for preparing them in an abridged form are met.

The criteria used in drafting and evaluation take into account the standards in the national legal system pursuant to Leg. 139/2015, through which Directive 2013/34/EU was implemented.

The annual financial statements are subject to certification by the Board of Auditors as statutory auditors.

ACTIVITIES IN 2024

The year 2024 was one of further growth and consolidation for the Foundation.

Within the scope of its specific mission, in particular, all research centres became fully operational, reaching a total of 25 research groups at the end of 2024, in addition to several Scientific Service Units supporting both the centres and existing scientific facilities. In addition, 5 National Facilities became operational in 2024, providing services for both the Foundation's internal research and external projects.

Also following the inclusion in the list of official units that are part of the General Government sector (Sector S.13) prepared by ISTAT (National Institute of Statistics) in application of the European System of Accounts (EU Regulation of the European Parliament and of the Council, No. 549/2013, SEC 2010) and the related fulfilments, the phase of structuring the administrative system was consolidated through a further definition of compliance and the operation of the Foundation.

A. RESEARCH ACTIVITIES AND FACILITIES DEVELOPMENT

During 2024, the institute continued to build critical mass, counting 25 research groups and a population of about 370 scientific staff in its research centres, facilities and services at the end of the year. During the year, HT scientists achieved significant scientific results in their respective fields, resulting, inter alia, in 190 peer-reviewed publications (twice as much as in 2023) in prestigious international journals. Furthermore, HT scientists were awarded numerous prestigious grants and scholarships (e.g. from ERC, EC/Horizon, EMBO, AIRC, Telethon, Cariplo, etc.), bringing the total amount of external competitive research grants raised by HT to €26 million vs. €17 million in 2023.

In line with the Foundation's objective to establish and develop collaborations with the Italian and international biomedical research community, discussions were held throughout the year on potential areas of collaboration with numerous universities, research centres, hospitals and companies engaged in life science research both in Italy and abroad. These interactions led to the signing of 14 agreements (MoUs, Framework Agreements, Research Collaboration Agreements) for new joint projects with scientists from numerous universities, research hospitals, research institutes and industries worldwide (Cambridge, Karolinska Institutet and Riken).

The universities, research institutes and national research hospitals involved in the above-mentioned collaborative projects include, among others the University of Pavia, the University of Bari, Policlinico San Donato, INMI L. Spallanzani and ASST Niguarda.

Many activities were carried out in the area of advanced scientific training, targeting both internal scientists and the external life science research community. The number of PhD students and postdocs at Human Technopole continued to grow during 2024, reaching 82 and 56, respectively (+32% overall compared to 2023). HT's PhD and postdoctoral communities were an important target for the numerous internal training and career development events organised for scientists during the year. Thirty-six internal training courses and workshops were also offered, covering topics ranging from technical skills (flow cytometry, high-performance computing, statistics, optical microscopy, image analysis, etc.) to soft skills (e.g. leadership, scientific writing, etc.) and career development, attended by over 300 Human Technopole scientists. These training opportunities were complemented by almost 70 seminars, held by the Foundation and high-profile external scientists.

Four important training events for the external life science research community took place at the Foundation. These were courses, conferences and workshops in the fields of space biology, omics and image data analysis, including the first EMBO course and the first major international conference (with almost 200 participants) hosted by Human Technopole. In total, almost 400 external scientists from national and international institutions attended these events.

In order to encourage mobility and the sharing of expertise, infrastructure and methods with the external research community, in 2024 Human Technopole hosted 24 scientific visitors - from different research institutes in Italy and abroad - who spent time at HT to collaborate with the Foundation's scientists on specific projects in different research areas, or to apply specific technologies available at Human Technopole to their own projects and/or acquire expertise in related methods.

B. BUILDING, PLANT AND TECHNOLOGY DEVELOPMENT OF THE FOUNDATION'S CAMPUS

In accordance with the Foundation's strategic planning and in addition to the provision and operation of facility management services for HT's properties, in 2024 work continued on the development and improvement of the infrastructure and space for scientific research, among which it is worth mentioning the main construction sites:

1. completion of the construction site for the liquid nitrogen supply line serving the CryoEm laboratories in the North Pavilion and the biological sample storage area (biobank) in the basement of Palazzo Italia. The premises are now set up and used by HT's researchers, and the running and refilling of the facility is managed by a specialist supplier;
2. conclusion of the project for the construction of the new Biosafety Level 3 (BSL3) laboratory in the South Pavilion;
3. conclusion of PHASE 1 works for the further expansion of light imaging microscopy in the North Pavilion. This is part of the first phase of work that will end in 2025 with further facility expansions;
4. completion of work to open the Preclinical Research Facility within the Incubator Block 3 building;
5. completion of work to open the Mass Spectrometry laboratory in the Incubator Block 1 building.

From the point of view of the ongoing improvement of the infrastructure available to Human Technopole and National Facilities, these were the other most significant activities carried out in 2024:

- the contract for the development of the executive design and works (TEFP) for a major expansion of light imaging microscopy in the North Pavilion was awarded. Implementation will take place in phases and be completed in Q3 2025 (PHASE 2);
- the contract for the development of the executive design and works for a major Cryo-EM microscopy expansion in the South Pavilion was awarded. Construction will require major structural and plant engineering work due to the requirements of microscopes (similar to the instrument fleet already operating in the North Pavilion) and will be completed in 2026;
- the contract for the development of the executive design and works for the construction of a a further Tape Library in the basement of Palazzo Italia for the long-term storage of scientific data in support of ICT was awarded. Construction will be completed in Q3 2025;
- the design, supply and installation of 2 prefabricated shelter modules for a new CED HPC cluster to be temporarily positioned in the technical area of Palazzo Italia for an additional power of 320kW in total, was awarded and launched. It is scheduled for delivery by Q3 2025. The option of doubling this infrastructure if the needs of the National Facilities so require is included in the tender. The infrastructure is needed in order to allow the Foundation to complete the fully operational Technological Hub and Data Centre.

On the other hand, with regard to completion of the Campus in the medium term, the project for the South Building and Technological Pole was revised in order to meet the new requirements arising from the Institute's strategic scientific planning, the new requirements of the National Facilities and the increase in construction prices compared to the 2022-2023 price lists.

In November, the reappraisal and revision of the project was approved and will be completed in 2025, followed by the process of obtaining the necessary building permits, the preparation of the final design and the tendering procedure for the works.

C. PROCUREMENT, TENDERING AND PURCHASING PROCESSES

At the same time as the significant increase in production value, procurement activities were also important in 2024, as briefly described here:

TYPE OF PURCHASE	No.	VALUE (EURO)	%
PURCHASES OUTSIDE PROCEDURE LEGISLATIVE DECREE 36/2023	3	42,066.56	0 %
PURCHASES UNDER LEGISLATIVE DECREE NO. 36/2023 - PROCUREMENTS ABOVE THRESHOLD	59	52,078,067,56	73%
PROCUREMENT UNDER LEGISLATIVE DECREE NO. 36/2023 - PROCUREMENTS UNDER THRESHOLD	454	19,565,883.15	27%
TOTAL	**516**	**71,686,017.27**	**100%**

In particular, compared to 2023, there was an increase in above-threshold procurements, mainly due to:

a. investments in large equipment following the development of the National Facilities;
b. better procurement planning and scheduling, with multi-annual contracts of consumables, also with a view to covering the growing needs of the National Facilities.

It should be noted that the Foundation had three cases pending at the end of 2024, for which, following the technical assessment and the court findings, the necessary allocations to the provision for risks were made, bringing its balance to approximately €634 thousand.

D. ICT ACTIVITIES

In 2024, the ICT area maintained and upgraded its existing infrastructure, expanding the Palazzo Italia data centre with 12 new storage nodes, adding 5 Petabytes of capacity, thus meeting its needs until delivery of the new shelters and tape library to take place in 2025. Two DGX were purchased to increase computing power from 2025. In addition, contracts were concluded to upgrade the network infrastructure with new core switches, firewalls and load balancers, with installation and testing scheduled for 2025.

With regard to IT services, a three-year tender was concluded for the supply of IT workstations, covering the Foundation's needs until 2027. As regards CyberSecurity, investments were made in a 'threat intelligence' platform and an external 'vulnerability assessment' was conducted on HT's public addresses and the Foundation's wi-fi network.

In addition, the automation of project selection processes for the National Facilities was completed, facilitating the management of administrative flows and the pricing of Human Technopole National Facilities services.

Finally, in the course of 2024, the needs and process requirements assessment for the implementation of the new SAP4HANA integrated management system was concluded. This activity constitutes the first step in the project to replace the current internal management information system 'SAP Business ByDesign', which will continue until 2026. This project is part of the institute's broader objective of overall administrative digitisation, aimed at ensuring the efficiency and effectiveness of operational processes, as well as greater transparency and integrity of the Foundation's management and financial data.

SUMMARY OF RESULTS 2024

Paragraph 3(b) of Article 2428 of the Italian Civil Code, as amended by Legislative Decree No. 32 of 2 February 2007, states that the Management Report shall include, 'financial and, where appropriate, non-financial performance indicators relevant to the specific activities to the extent necessary for an understanding of the company's position and performance'. Given the non-profit nature of Human Technopole, we decided, without prejudice to what is set out in the financial statements and the notes to the financial statements, to illustrate the highlights of the balance sheet, the Profit and Loss Account and the operating ratios that show the results achieved.

The financial statements for the financial year 2024, accompanied by this report and the notes to the financial statements, were subjected to the mandatory audit by the Board of Auditors.

EURO	31/12/2024	31/12/2023
VALUE OF PRODUCTION	79,790,539	66,609,077
EBITDA	20,058,846	16,923,524
OPERATING PROFIT	501,611	730,815
NET RESULT	5,971	35,339
FIXED ASSETS	131,132,156	131,361,161
TOTAL EQUITY	608,305,587	541,562,132
NET FINANCIAL POSITION	588,052,939	419,566,523

Value of production amounted to €79,790,539, which includes:

- MEF (Italian Ministry of Economy and Finance) grants totalling €75,836,295, of which:
  - for HT a total of €48,143,899;
  - for the Centre for Innovation and Technology Transfer (CITT) a total of €477,395;
  - for the National Facilities a total of €27,215,001;
- grants from other entities (non-MEF funds) of €3,660,982;
- 'other revenues' amounting to €293,263.

With regard to the balance sheet items, the value of equity as at 31 December 2024 was €608,305,587. It includes the Endowment Fund of the Foundation of €77,261,869 and the HT Management Fund, which amounts to €245,394,766 and includes the annual grants, not yet used, that Article 1 paragraph 121 of Law 232/2016 allocated to Human Technopole in the 2017-2024 period. In addition, equity includes the residual balance of the CITT Management Fund in the amount of €14,293,324 and that attributable to the new National Facilities in the amount of €271,215,855, retained earnings from previous years in the amount of €133,802, and the profit for the year amounting to €5,971. A total of about €66.7 million was utilised from the Management Fund, following the economic commitments made by the Foundation.

The net financial position amounted to €588,052,939, representing the sum of the value of cash and cash equivalents, amounting to €21,707,163, and the value of current financial assets, amounting to €566,345,776, relating to the balance of the centralised treasury account opened with the Bank of Italy.

THE PROFIT AND LOSS ACCOUNT

The following table shows the results achieved during the year (€), in terms of revenue, EBITDA and pre-tax result.

EURO	31/12/2024	31/12/2023
VALUE OF PRODUCTION	79,790,539	66,609,077
EBITDA	20,058,846	16,923,524
PRE-TAX PROFIT	499,572	729,424

KEY ECONOMIC DATA

The reclassified profit and loss account, compared with that of the previous year, is as follows.

EURO	31/12/2024	31/12/2023	CHANGE €
VALUE OF PRODUCTION	79,790,539	66,609,077	13,181,463
EXTERNAL COSTS	35,112,253	28,332,216	6,780,037
ADDED VALUE	**44,678,287**	**38,276,861**	**6,401,425**
PERSONNEL EXPENSE	24,619,441	21,353,337	3,266,104
EBITDA	**20,058,846**	**16,923,524**	**3,135,321**
AMORTISATION, DEPRECIATION AND WRITE-DOWNS AND OTHER PROVISIONS	19,557,235	16,192,709	3,364,526
OPERATING PROFIT	**501,611**	**730,815**	**(229,204)**
NON-CHARACTERISTIC INCOME	-	-	-
FINANCIAL INCOME AND EXPENSE	2,039	1,391	648
ORDINARY RESULT	**499,572**	**729,424**	**(229,852)**
REVALUATIONS AND WRITE-DOWNS	-	-	-
PRE-TAX PROFIT	**499,572**	**729,424**	**(229,852)**
INCOME TAXES	493,601	694,085	(200,484)
NET RESULT	**5,971**	**35,339**	**(29,368)**

THE BALANCE SHEET

The main changes in the balance sheet during the 2024 financial year have been summarised in the following table, in which the asset and liability items have been appropriately reclassified so as to provide evidence of invested capital, financing sources and their key factors.

EURO	31/12/2024	31/12/2023	CHANGE
NET INTANGIBLE FIXED ASSETS	155,164	173,257	(18,093)
NET TANGIBLE FIXED ASSETS	130,976,992	131,187,904	(210,912)
EQUITY INVESTMENTS AND OTHER FINANCIAL ASSETS	-	-	-
CAPITAL ASSETS	**131,132,156**	**131,361,161**	**(229,005)**
INVENTORIES	106,569	82,084	24,485
TRADE RECEIVABLES	207,835	116,526	91,308
OTHER RECEIVABLES	57,076,284	151,204,102	(94,127,818)
ACCRUED INCOME AND PREPAID EXPENSES	1,548,904	1,593,069	(44,165)
SHORT-TERM OPERATING ASSETS	**58,939,592**	**152,995,781**	**(94,056,189)**
TRADE PAYABLES	18,611,451	16,227,267	2,384,184
ADVANCES	-	-	-
TAX AND SOCIAL SECURITY PAYABLES	4,678,881	3,382,932	1,295,949
OTHER PAYABLES	2,322,759	1,931,870	390,889
ACCRUED EXPENSES AND DEFERRED INCOME	141,430,571	139,007,012	2,423,558
SHORT-TERM OPERATING LIABILITIES	**167,043,662**	**160,549,081**	**6,494,580**
NET WORKING CAPITAL	**23,028,087**	**123,807,861**	**(100,779,774)**
SEVERANCE PAY	2,110,584	1,495,397	615,187
TAX AND SOCIAL SECURITY DEBTS (BEYOND THE NEXT FINANCIAL YEAR)	-	-	-
OTHER NON-CURRENT LIABILITIES	664,854	316,854	348,000
MEDIUM- AND LONG-TERM LIABILITIES	**2,775,438**	**1,812,251**	**963,187**
INVESTED CAPITAL	**20,252,648**	**121,995,609**	**(101,742,961)**
EQUITY	(608,305,587)	(541,562,132)	(66,743,455)
NON-CURRENT NET FINANCIAL POSITION	-	-	-
SHORT-TERM NET FINANCIAL POSITION	588,052,939	419,566,523	168,486,416
OWN FUNDS AND NET FINANCIAL DEBT	**(20,252,648)**	**(121,995,609)**	**101,742,961**

Specifically, Equity reflects, after deducting the annual utilisation of the Total Management Fund, the increases recorded during the year. The latter relate to the 2024 Management Fund, amounting to €2 million, allocated to CITT (Centre for Innovation and Technology Transfer) by Law 77 of 17 July 2020, which converted Decree-Law 34 of 19 May 2020, and to the Human Technopole Management Fund, which was set at €140.3 million for the year 2024.

MAIN FINANCIAL FIGURES

The net financial position as at 31/12/2024 is as follows:

EURO	31/12/2024	31/12/2023	CHANGE
BANK DEPOSITS	588,051,796	419,565,637	168,486,159
CASH-IN-HAND AND CASH EQUIVALENTS	1,143	886	257
CASH AND CASH EQUIVALENTS	**588,052,939**	**419,566,523**	**168,486,416**
CURRENT FINANCIAL ASSETS			
PAYABLES DUE TO BANKS (WITHIN THE FINANCIAL YEAR)	-	-	-
SHORT-TERM FINANCIAL LIABILITIES	-	-	-
SHORT-TERM NET FINANCIAL POSITION	588,052,939	419,566,523	168,486,416
NET FINANCIAL POSITION IN THE MEDIUM/LONG-TERM	-	-	-
NET FINANCIAL POSITION	**588,052,939**	**419,566,523**	**168,486,416**

It should be noted that the value of the net financial position also includes the balance of the centralised treasury account with the Bank of Italy, amounting to €566,345,776, which in the statutory balance sheet is classified under 'Current financial assets'. More specifically, this account was opened in October 2020 by implementing the provisions of Article 49-bis, para 4, of Decree-Law No. 34/2020 (known as 'Relaunch Decree'), converted with amendments into Law No. 77/2020, which provided for the opening of a non-interest-bearing account in the name of the HT Foundation at the State Treasury. This account includes, inter alia, the financial advance received from the Foundation, amounting to 333 million, to cover the estimated construction costs of the new South Building.

Moreover, within the framework of ordinary bank relationships, in addition to the current account with Banca Intesa in the name of HT, which has a balance of €2,782,211, there is also a current account with Banca Intesa in the name of CITT, which has a balance of €10,074,065 as of 31 December 2024 and the current account with Banca Intesa relating to Non-MEF Funds, which has a balance of €8,846,209 as of 31 December 2024. Finally, an amount of €3,536 is reported as credit card balance and an amount of €1,143 as cash balance.

In order to provide a clearer picture of the financial position, the table below shows certain financial statement indicators.

EURO	31/12/2024	31/12/2023
FIXED ASSETS (FA) / INVESTED CAPITAL (IC)	549.10%	107.70%
IMMEDIATE LIQUIDITY (IL) / INVESTED CAPITAL (IC)	2,462.20%	343.90%
STRUCTURE MARGIN EURO (CN- FIXED ASSETS)	480,803,776	410,200,972

INVESTMENTS

During the year, investments were made in the following areas:

EURO - FIXED ASSETS	31/12/2024	31/12/2023	NET INVESTMENTS
TANGIBLE ASSETS			
LAND AND BUILDINGS	68,338,627	69,189,610	(850,983)
PLANT AND MACHINERY	2,698,941	2,403,592	295,349
INDUSTRIAL AND COMMERCIAL EQUIPMENT	32,348,744	29,867,201	2,481,543
OTHER ASSETS	24,177,789	24,886,228	(708,439)
ASSETS UNDER DEVELOPMENT	3,353,981	4,782,363	(1,428,382)
OTHERS	58,910	58,910	-
TOTAL TANGIBLE ASSETS	**130,976,992**	**131,187,904**	**(210,912)**
INTANGIBLE ASSETS			
CONCESSIONS, LICENCES, TRADEMARKS AND SIMILAR RIGHTS	65,421	70,996	(5,575)
INDUSTRIAL PATENTS AND INTELLECTUAL PROPERTY RIGHTS	5,823	-	5,823
OTHERS	83,920	102,261	(18,341)
TOTAL INTANGIBLE ASSETS	**155,164**	**173,257**	**(18,093)**
TOTAL FIXED ASSETS	**131,132,156**	**131,361,161**	**(229,005)**

OTHER INFORMATION

The HT Foundation constantly monitors its internal operational processes, which are still in the growth and stabilisation phase, in order to promote the gradual definition of the way in which operational activities are governed and operated (regulations and procedures).

ORGANISATIONAL, MANAGEMENT AND CONTROL MODEL

The HT Foundation has continued to implement the "Organisational, Management and Control Model" pursuant to Legislative Decree no. 231/2001 (Model 231), regulating the administrative liability of entities in the field of offences caused by crime, last updated on 30 October 2024. In relation to Model 231, training activities were carried out for managerial and non-managerial personnel.

ENTRY IN THE ISTAT (NATIONAL INSTITUTE OF STATISTICS) LIST OF PUBLIC ADMINISTRATIONS

By measure adopted pursuant to Art. 1 para. 2 of Legislative Decree No. 196/2009, the National Institute of Statistics registered the HT Foundation in the ISTAT List of Public Administrations.

Following registration, the HT Foundation is subject to the provisions in force on public finance, including the rules on public expenditure containment.

In this regard, the Foundation has launched an audit to check all applicable regulations, including any provisions relating to expenditure containment measures, known as 'spending review'.

In particular, the Foundation has verified, also through the opinion of the competent offices of the Ministry of Economy and Finance and of the supervising administrations, the applicability of these provisions to its own case, i.e. that of a newly-established body, which can be considered 'fully operational' only once the investments for the construction of the headquarters and infrastructure have been completed.

It is worth noting, however, that as early as 2021 the Foundation adopted for its general current expenses a policy of maximum compliance with the Consip agreements and other aggregating entities provided for by the legislator, which, as is well known, remain outside the scope of spending review rules.

MULTI-YEAR PLANNING DOCUMENT FOR 2025 - 2027

On 19 December 2024, the Supervisory Board approved the update of the Foundation's Multi-Year Planning Document (DPP) for the period 2024 - 2026, pursuant to Article 13 of the Articles of Association.

THE CENTRE FOR INNOVATION AND TECHNOLOGY TRANSFER

In 2024, the activities of the Centre for Innovation and Technology Transfer (CITT) were aimed at supporting the technology transfer system in Italy, developing its programme along its three well-established lines of training, networking and international relations, which also includes the study of foreign technology transfer models.

1. Training : To support Italian universities and research centres in training Italian students and scientists on the mechanisms for making the most of their discoveries, in 2024 CITT offered a four-day course (held on the Human Technopole Foundation's premises) on the essential tools of technology transfer, attended by 28 scientists and young professionals selected from IRCCSs, universities, Italian and foreign research institutes. The course was organised in cooperation with Netval (National Association of Technology Transfer Operators) and the University Institute of Advanced Studies (IUSS) in Pavia. During the year, three in-depth online workshops were also organised, namely '*To publish or patent: when is the right time?*', '*What attracts investors?*' and '*Innovations in Drug Repurposing and Target Validation*'.

2. Networking: In 2024, CITT continued to contribute to strengthening the network of Italian technology transfer professionals by holding meetings and discussions on topics of common interest. Two meetings were organised in Milan in 2024: the first one, 'Beyond the Industrial Property Code', was organised with Italian Tech Alliance to discuss the critical issues and opportunities arising from the reform of the Industrial Property Code in Italy. A corporate venture meeting with Chiesi farmaceutici was also held.

3. International relations and the study of foreign technology transfer models took the shape of study tours to encourage interaction between the Italian technology transfer system and that of other European countries, to compare models that might be applied to the Italian System, to learn about funding opportunities provided at European level, and to attract researchers and funds to innovation in our country. Lastly, in 2024 study tours were organised in the UK, Germany and Belgium. As regards the exploration of virtuous models in research and technology transfer, special attention was given to examining the best public-private collaborative research experiences. The idea is that collaborative research platforms can effectively act as a link between research laboratories and the market, helping researchers transfer their knowledge into technologies that have an impact in society.

SUPERVISORY BOARD

The Supervisory Board monitors the use of resources and carries out general guidance and audits over the Foundation. The composition of this body provides for thirteen members, appointed by the Prime Minister's Office, including the Chair (Art. 12 of the Articles of Association). As at 31 December 2024, the Supervisory Board of the Foundation consisted of twelve members, including the Chair.

It should be noted that the four-year term of office of 4 members of the Supervisory Board, appointed pursuant to Article 12, paragraph 2, letter a) of the Articles of Association, expired on 28 January 2024 and, with the Prime Minister's Decree of 9 May 2024, the Presidency of the Council of Ministers appointed 3 new members replacing the previous members who had ceased to hold office and confirmed the second term of office of one member, for a further four years.

It is pointed out that a thirteenth member of the Supervisory Board may be appointed by the participating Members, in agreement with each other, provided that they pay at least three per cent of the annual State grant, also in association with each other. To date, there are no participating Members in the Foundation.

In addition, it should be noted that in November and December, the update of the Foundation's Management Control Model and the 2024-2028 Strategic Plan were approved, respectively.

MANAGEMENT COMMITTEE

As at 31 December 2024, the Management Committee of the Foundation consisted of five members, including the Chair.

SCIENTIFIC COMMITTEE

The Foundation's Scientific Committee is an advisory body, to which the Articles of Association assign a wide range of functions, including assessing the correlation between scientific activities and the Foundation's multi-year plans, its organisation in the medium term and the correct allocation of resources (both economic and human) to the various projects.

The composition of this body comprises fifteen members, appointed by the Supervisory Board. Fourteen members were appointed to serve four-year terms in 2022, including the Chair, Prof. Walter Ricciardi. On 1 June 2023, the Supervisory Board appointed the fifteenth member and the Scientific Committee is now in its full composition.

SUPERVISORY BODY

The Supervisory Board referred to in Article 6, paragraph 1, letter b) of Legislative Decree No. 231 of 8 June 2001, endowed with autonomous powers of initiative and control pursuant to Article 2 of the Foundation's Articles of Association, continued its supervisory activity on the operation of and compliance with Model 231, bringing it in line with the recent new law on whistleblowing (Legislative Decree No. 24/2023).

In the financial year 2024, the Supervisory Body pursued the activity for which it is responsible in relation to the updating of Model 231 with regard to the recent expansion of the catalogue of predicate offences.

COMPLIANCE

Following the approval of the Foundation's General Operating Regulations, in July 2024, in accordance with the provisions therein, compliance activities were progressively taken over by the General Counsel who continued the processes already started in the first six months of 2024, in relation to: audits of the entity's internal regulations (Regulations, Procedures or Guidelines, assisting HT's internal departments that required their implementation); management of the Conflicts of Interest register and annual submission of the Conflicts of Interest Report to the Supervisory Board; certification of the fulfilment of disclosure obligations regarding transparency.

INTERNAL AUDIT AREA

During the year, the annual Internal Audit Plan was developed based on risk analysis. Specifically, the Internal Audit activities carried out in 2024 were as follows:

1. definition of the annual Internal Audit Plan prepared by carrying out the following activities:
   a. interviews with the Chair of the Supervisory Board, the Director and the General Counsel as well as with the Coordinator of the Control and Risk Committee and the Chair of HT's Supervisory Body to understand the strategies and main objectives of the entity as well as any indications and requests and to identify any changes in HT's risk profile resulting from: i) changes in the governance structure defined by its Articles of Association; ii) organisational changes expected as a result of the new governance structure; iii) the programme plan of scientific activities;
   b. documentary analysis of the 2023 Internal Audit Annual Report and the audit reports issued, as well as an in-depth analysis of the areas of improvement and recommendations identified during the audits carried out in 2023.
2. execution - as at 31.12.2024 - of the following actions envisaged in the plan:
   - follow-up of Strategy & Scientific Affairs Audit;
   - follow-up of Institutional Relations Audit;
   - follow-up of Audit concerning negotiated procedures without the prior publication of a call for bids under Art. 63 of Legislative Decree 50/2016;
   - follow-up of Supply Chain Audit.

FINANCIAL REPORTING OFFICER AND CORPORATE DOCUMENTS

In 2024, Financial Risk Management was performed in order to identify and map the main operational risks and controls impacting the Foundation's financial statements.
More specifically, the analysis and mapping of the 'as is' situation vs. the 'to be' situation with regard to the SoD (Segregation of Duties) and the main controls aimed at monitoring and mitigating risks were further pursued, focusing on the following operational processes: Payroll cycle; Expenditure reporting cycle; Grant cycle (review and fine tuning); Treasury cycle.

In addition, in 2024, the Grant, Expenditure reporting and Payroll cycles were tested to verify the operational effectiveness of the controls applied.
The resulting evidence led to specific risk and control matrices for the aforementioned operational processes, as well as to the identification of additional control points and policies/procedures to be implemented or updated, in order to mitigate balance sheet risk.

STAKEHOLDER RELATIONS

During 2024, official meetings and visits were promoted with international, national and local interlocutors of the Human Technopole Foundation contributed to the activities and projects of the MIND district, including hosting visits organised by partners in the area. The Foundation also took part in official and industry initiatives by research, innovation and health ecosystems players.

In 2024, the fourth edition of the Integrated Report was produced, which won the Oscar di Bilancio organised by Borsa Italiana in the non-profit organisation category. This document is conceived as a useful tool to provide the Foundation's stakeholders with a unified view of the many aspects of HT, as well as to strengthen the institute's transparency path.

HUMAN RESOURCES AND ORGANISATION

The number of Foundation employees at the end of 2024 was 340, 21.4% up from 280 at the end of 2023. Employees are divided into 43 senior managers (Industry Managers National Collective Labour Agreement), 63 middle managers and 231 office workers (Chemistry National Collective Labour Agreement) and 3 apprentices. During 2024, 88 human resources were recruited, against 28 resignations.

The activation of PhDs and Post Docs also continued, reaching 82 and 56 respectively by the end of 2024.

In the personnel management area, the Foundation's strategy is focused on four main objectives: organisational excellence, cultural transformation, talent management and improvement of HR services.

These objectives take the shape of key initiatives, including the implementation of a job levelling system, conducting employee engagement surveys, transforming HR functions for greater efficiency, strengthening corporate branding to attract talent, adopting SAP SuccessFactors for human capital management, and assessing skills to shape training. These actions aim to strengthen the organisation's competitiveness and improve employee well-being.

In November 2024, the new Gender Equality Plan was approved. The plan takes into account the Horizon Europe guidelines, meets the mandatory requirements for application to scientific grants and is aligned with the standards set out in the Uni/PdR 125:2022 certification, further consolidating the organisation's commitment to promoting gender equality.

In addition, in December 2024 the Foundation was awarded the Uni/PdR 125:2022 gender equality certification, a testament to its continuous efforts to ensure equality and inclusion.

In 2024, several training courses were held to support the development of staff skills, both in technical and crosscutting areas. Activities covered topics such as business process management, project management and digital tools.

Courses on communications, conflict management and decision-making were also proposed. In addition, English and Italian language courses were offered to meet the needs of an international working environment.

During the year, the first climate analysis among the Foundation's staff was launched, the data of which will be examined in Q1 2025. Organisational climate surveys are used to collect feedback from employees on key aspects such as work well-being, internal communications and engagement, enabling the organisation to identify areas for improvement and define targeted strategies.

In addition, an organisational review process was launched to optimise and make the entire institute more efficient.

Finally, job levelling was introduced, adopting the Willis Towers Watson's Global Grading System (GGS), a process that allows roles within the organisation to be classified and compared according to responsibility, skills and impact. This tool is fundamental to ensure consistency and pay equity, as well as to foster clearer and more structured career paths.

With regard to the mobility policy, several initiatives were carried out during the year, such as the car pooling platform and the introduction of two electric shuttles.

During 2024, constant dialogue continued with the unitary trade union representatives and, on 13 November, an agreement was signed for the management of temporary workers in the research area (known as Proximity agreement pursuant to Art. 8 of Decree Law 138/2011).

Finally, negotiations were resumed on the text of the supplementary agreement in order to adapt and update it in light of the issues arising during the year.

EVENTS OCCURRING AFTER THE END OF THE FINANCIAL YEAR

It should be noted that with the approval of Budget Law 2025 (no. 207/2024), the annual grants to Human Technopole were reduced from €140.3 million to €126.3 million for the 2025-2027 three-year period. CITT's annual contribution will be reduced from 2 million to 1 million.

OUTLOOK

With respect to the development of internal research activities, a further expansion of the Research Group lines is expected from the current 25 to 28, based on the three-year budget estimates.

With regard to Personnel, the recruitment and hiring of new resources will continue, especially in the Research Centres and scientific facilities, in line with the growth plan envisaged in the Planning Document for the year 2025, whereby by the end of the year the Foundation will reach a total of 590 units, including 94 units for the PhD category.

On the infrastructure side, we will further develop the project for the construction of new buildings to complete the Campus, with the aim of tendering the construction of the buildings by early 2026.

Significant investments are also envisaged in design and works for the construction of spaces for the operation of the National Facilities to support external research projects, in accordance with the provisions of the Agreement entered into with the Supervising Administrations pursuant to Law 160/2019.

PROPOSED ALLOCATION OF THE ECONOMIC RESULT

Ladies, Gentlemen,

We thank you for the trust you have placed in us and invite you to approve the Financial Statements, Notes to the Financial Statements and this Report as presented, proposing to allocate the economic surplus for the financial year 2024, amounting to €5,971 to the Management Fund.

Milan, 16 April 2025

THE MANAGEMENT COMMITTEE
Chair
(Prof. Marino Zerial)

BALANCE SHEET AND PROFIT AND LOSS ACCOUNT

HT BALANCE SHEET - ASSETS

BALANCE SHEET - ASSETS - (VALUES EXPRESSED IN EURO)	31/12/2024	31/12/2023
A) RECEIVABLES FROM SHAREHOLDERS FOR PAYMENTS STILL DUE	**-**	**-**
Receivables from members already called up	-	-
Receivables from members not yet called up	-	-
B) FIXED ASSETS, WITH SEPARATE INDICATION OF LEASED ASSETS	**131,132,156**	**131,361,161**
I. Intangible assets	**155,164**	**173,257**
3) Industrial patents and intellectual property rights	5,823	-
4) Concessions, licences, trademarks and similar rights	65,421	70,996
7) Other	83,920	102,261
II. Tangible assets	**130,976,992**	**131,187,904**
1) Land and buildings	68,338,627	69,189,610
2) Plant and machinery	2,698,941	2,403,592
3) Industrial and commercial equipment	32,348,744	29,867,201
4) Other assets	24,177,789	24,886,228
5) Assets under construction and down payments	3,353,981	4,782,363
7) Other	58,910	58,910
III. Financial assets	**-**	**-**
C) CURRENT ASSETS	**645,443,627**	**570,969,235**
I. Inventory	**106,569**	**82,084**
1) Raw materials, consumables and goods	106,569	82,084
2) Work in progress and semi-finished products	-	-
3) Contract work in progress	-	-
4) Finished products and goods	-	-
5) Advances	-	-

BALANCE SHEET - ASSETS - (VALUES EXPRESSED IN EURO)	31/12/2024	31/12/2023
II. Receivables	**57,284,119**	**151,320,628**
1) trade receivables	207,835	116,526
within 12 months	207,835	116,526
beyond 12 months	-	-
5-bis) tax assets	329,342	179,855
within 12 months	329,342	179,855
beyond 12 months	-	-
5-quater) from others	56,301,024	150,582,368
within 12 months	3,908,237	4,855,141
beyond 12 months	52,392,787	145,727,226
6- OTHER RECEIVABLES FROM INTERNAL RECHARGES	445,918	441,879
within 12 months	445,918	441,879
beyond 12 months	-	-
III. Current financial assets	**566,345,776**	**377,786,337**
7) Non-interest-bearing accounts with the General State Treasury	566,345,776	377,786,337
IV. Cash and cash equivalents	**21,707,163**	**41,780,186**
1) Bank and postal deposits	21,706,021	41,779,300
2) Cheques	-	-
3) Cash-in-hand and cash equivalents	1,143	886
D) ACCRUED INCOME AND PREPAYMENTS	**1,548,904**	**1,593,069**
Discounts on loans	-	-
Sundry	1,548,904	1,593,069
TOTAL ASSETS	**778,124,687**	**703,923,465**

HT BALANCE SHEET - LIABILITIES

BALANCE SHEET - LIABILITIES (VALUES EXPRESSED IN EUROS)	31/12/2024	31/12/2023
A) EQUITY	**608,305,587**	**541,562,132**
I. Endowment Fund and Reserves	**77,261,869**	**77,261,869**
HT Endowment Fund	77,261,869	77,261,869
IV. Management Fund	**530,903,946**	**464,166,462**
HT Management Fund	245,394,766	231,802,262
NF Management Fund	271,215,855	219,593,481
CITT Management Fund	14,293,324	12,770,719
VIII. Economic surplus (deficit) from the previous year	**133,802**	**98,463**
IX. Economic surplus (deficit) for the year	**5,971**	**35,339**
B) PROVISIONS FOR RISKS AND CHARGES	**664,854**	**316,854**
3) Other provisions	**664,854**	**316,854**
C) SEVERANCE PAY	**2,110,584**	**1,495,397**
D) PAYABLES	**25,613,091**	**21,542,069**
7) Trade payables	**18,611,451**	**16,227,267**
within 12 months	18,611,451	16,227,267
beyond 12 months	-	-

BALANCE SHEET - LIABILITIES (VALUES EXPRESSED IN EUROS)	31/12/2024	31/12/2023
12) Tax payables	**2,979,499**	**1,985,037**
within 12 months	2,979,499	1,985,037
beyond 12 months	-	-
13) Payables to social security institutions	**1,699,382**	**1,397,895**
within 12 months	1,699,382	1,397,895
beyond 12 months	-	-
14) Other payables	**1,909,841**	**1,522,991**
within 12 months	1,909,841	1,522,991
beyond 12 months	-	-
15) Other payables from internal recharges	**412,918**	**408,879**
E) ACCRUALS AND DEFERRALS	**141,430,571**	**139,007,012**
Sundry	141,430,571	139,007,012
TOTAL LIABILITIES	**778,124,687**	**703,923,465**

HT PROFIT AND LOSS ACCOUNT

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
A) VALUE OF PRODUCTION	**79,790,539**	**66,609,077**
1) Turnover from sales and services	**-**	**-**
2) Changes in inventories of work in progress, semi-finished and finished products	**-**	**-**
3) Changes in contract work in progress	**-**	**-**
4) Increases in fixed assets for internal work	**-**	**-**
5) Other revenue and income:	**79,790,539**	**66,609,077**
a) Miscellaneous	293,263	145,166
b) HT grants:	48,143,899	63,950,038
- of which HT Operating grants	31,604,544	48,148,019
- of which HT Capital grants	16,539,355	15,802,019
c) CITT grants	477,395	460,711
- of which CITT Capital grants	-	-
- of which CITT Operating grants	477,395	460,711
d) National Facilities grants	27,215,001	735,022
e) Other entities grants	3,660,982	1,318,139
- of which other entities capital grants	-	-
- of which other entities operating grants	3,660,982	1,318,139
B) COSTS OF PRODUCTION	**79,288,929**	**65,878,262**
6) Purchases of raw materials, consumables and goods	**11,721,950**	**10,179,848**
7) Expenses for services	**21,517,860**	**16,003,219**
8) Costs for use of third party assets	**785,322**	**951,078**
9) Personnel expenses	**24,619,441**	**21,353,337**
a) Wages, salaries	17,637,053	15,322,839
b) Social security contributions	5,070,703	4,401,184

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
c) Severance pay	1,192,966	1,028,831
d) Pensions and similar costs	178,467	172,691
e) Other costs	540,253	427,791
10) Amortisation, depreciation and write-downs	**19,182,497**	**15,853,076**
a) Amortisation of intangible assets	84,007	63,381
b) Depreciation of tangible assets	19,098,490	15,789,695
c) Other write-downs of fixed assets	-	-
d) Write-downs of current receivables and cash and cash equivalents	-	-
11) Changes in inventories of raw, ancillary and consumable materials and goods	**24,485**	**24,080**
12) Provision for risks	**335,819**	**315,553**
13) Other provisions	**14,434**	**-**
14) Other operating costs	**1,087,121**	**1,198,071**
Difference between value and costs of production	**501,611**	**730,815**
C) FINANCIAL INCOME AND EXPENSES	**2,039**	**1,391**
17) Interest and other financial charges:	**-**	**-**
17 bis) Foreign exchange gains and losses	**2,039**	**1,391**
D) VALUE ADJUSTMENTS TO FINANCIAL ASSETS AND LIABILITIES	**-**	**-**
Pre-tax profit	**499,572**	**729,424**
20) Income taxes for the year	**493,601**	**694,085**
a) Current taxes	493,601	694,085
b) Deferred tax liabilities	-	-
c) Deferred tax assets	-	-
d) Income (expenses) from joining the tax consolidation/transparency scheme	-	-
21) Profit/(Loss) for the year	**5,971**	**35,339**

CASH FLOW STATEMENT

HT CASH FLOW STATEMENT

INDIRECT METHOD - DESCRIPTION	31/12/2024	31/12/2023
A. FINANCIAL FLOWS FROM OPERATIONS		
Economic surplus (deficit) for the year	5,971	35,339
Income taxes	493,601	694,085
Interest expense/(interest income)	-	-
(Dividends)	-	-
(Gains)	-	-
Total Capital gains/Losses deriving from disposal of assets	-	-
of which tangible fixed assets	-	-
of which intangible fixed assets	-	-
of which financial fixed assets	-	-
1. Economic surplus (deficit) for the year before income tax, interest, dividends and capital gains/losses from sale in the net working capital	**499,572**	**729,424**
Adjustments for non-monetary items with no balancing entry in net working capital		
Allocations to provisions	348,000	315,553
Amortisation/depreciation of fixed assets	19,182,497	15,853,076
Write-downs due to impairment losses	-	-
Value adjustments to financial assets and liabilities of derivative financial instruments not involving monetary movements	-	-
Other upward/(downward) non-monetary adjustments	-	-
Total non-monetary adjustments with no balancing entry in net working capital	19,530,497	16,168,629

INDIRECT METHOD - DESCRIPTION	31/12/2024	31/12/2023
2. Cash flow before changes in the net working capital	**20,030,069**	**16,898,053**
Changes in net working capital		
Decrease/(increase) in inventories	(24,485)	(24,080)
Decrease/(increase) in trade receivables	(91,308)	(28,824)
Increase/(decrease) in trade payables	2,384,184	(4,255,623)
Decrease/(increase) in accrued income and prepayments	44,165	(140,626)
Incremento/(decremento) dei ratei e risconti passivi	2,423,558	4,754,341
Other decreases/(Other Increases) in working capital	96,097,168	239,030,167
Total changes in net working capital	100,833,282	239,335,354
3. Cash flow after changes in net working capital	**120,863,351**	**256,233,407**
Other adjustments		
Interest received/(paid)	-	-
(Income taxes paid)	(776,113)	(676,193)
Dividends collected	-	-
(Use of provisions)	615,187	472,263
Other collections/(payments)	-	-
Total other adjustments	(160,926)	(203,930)
CASH FLOWS FROM OPERATING ACTIVITIES (A)	**120,702,424**	**256,029,477**

INDIRECT METHOD - DESCRIPTION	31/12/2024	31/12/2023
B. CASH FLOWS FROM INVESTING ACTIVITIES		
Tangible assets	**(18,887,579)**	**(21,325,501)**
(Investments)	(18,887,579)	(21,325,501)
Disinvestments	-	-
Intangible assets	**(65,914)**	**(77,902)**
(Investments)	(65,914)	(77,902)
Disinvestments	-	-
Financial fixed assets	-	-
(Investments)	-	-
Disinvestments	-	-
Current financial assets	**(188,559,439)**	**(274,061,308)**
(Investments)	(188,559,439)	(274,061,308)
Disinvestments	-	-
(Acquisition of business units net of cash and cash equivalents)	**-**	**-**
Sale of business units net of cash and cash equivalents	**-**	**-**
CASH FLOWS FROM INVESTING ACTIVITIES (B)	**(207,512,931)**	**(295,464,712)**
C. CASH FLOWS FROM FINANCING ACTIVITIES		
Third-party funds		
Increase/(Decrease) in short term bank loans and borrowings	-	(98)
Opening of loans	-	-
(Loans repaid)	-	-

INDIRECT METHOD - DESCRIPTION	31/12/2024	31/12/2023
Own funds		
Increase in Endowment Fund	-	-
Increase in Management Fund	66,737,484	71,010,618
(Dividends and interim dividends)	-	-
FINANCIAL FLOWS FROM FINANCING ACTIVITIES (C)	**66,737,484**	**71,010,520**
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS (A+-B+-C)	**(20,073,023)**	**31,575,286**
Foreign exchange effect on cash and cash equivalents	-	-
Opening cash and cash equivalents	-	-
Bank and postal deposits	41,779,300	10,203,763
Cheques	-	-
Cash-in-hand and cash equivalents	886	1,137
Total opening cash and cash equivalents	**41,780,186**	**10,204,900**
Of which not freely usable	-	-
Closing cash and cash equivalents	-	-
Bank and postal deposits	21,706,021	41,779,300
Cheques	-	-
Cash-in-hand and cash equivalents	1,143	886
Total closing cash and cash equivalents	**21,707,163**	**41,780,186**
Of which not freely usable	-	-

PROFIT AND LOSS ACCOUNT - CITT DETAILS

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
A) VALUE OF PRODUCTION	**477,402**	**460,721**
1) Turnover from sales and services	**-**	**-**
2) Changes in inventories of work in progress, semi-finished and finished products	**-**	**-**
3) Changes in contract work in progress	**-**	**-**
4) Increases in fixed assets for internal work	**-**	**-**
5) Other revenue and income:	**477,402**	**460,721**
a) Various	7	10
b) HT grants:	-	-
of which HT Operating grants	-	-
of which HT Capital grants	-	-
c) CITT grants	477,395	460,711
of which CITT Capital grants	-	-
of which CITT Operating grants	477,395	460,711
d) National Facilities grants	-	-
e) Other entities grants	-	-
of which other entities capital grants	-	-
of which other entities operating grants	-	-
B) COSTS OF PRODUCTION	**477,402**	**460,721**
6) Purchases of raw materials, consumables and goods	**-**	**2,196**
7) Expenses for services	**329,040**	**226,893**
8) Costs for use of third party assets	**-**	**179**
9) Personnel expenses	**148,287**	**231,196**
a) Wages, salaries	109,049	195,994
b) Social security contributions	27,692	25,298

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
c) Severance pay	7,688	6,258
d) Pensions and similar costs	858	957
e) Other costs	3,000	2,689
10) Amortisation, depreciation and write-downs	**-**	**-**
a) Amortisation of intangible assets	-	-
b) Depreciation of tangible assets	-	-
c) Other write-downs of fixed assets	-	-
d) Write-downs of current receivables and cash and cash equivalents	-	-
11) Changes in inventories of raw, ancillary and consumable materials and goods	**-**	**-**
12) Provision for risks	**-**	**-**
13) Other provisions	**-**	**-**
14) Other operating costs	**75**	**257**
Difference between value and costs of production	**-**	**-**
C) FINANCIAL INCOME AND EXPENSES	**-**	**-**
17) Interest and other financial charges:	**-**	**-**
17 bis) Foreign exchange gains and losses	**-**	**-**
D) VALUE ADJUSTMENTS TO FINANCIAL ASSETS AND LIABILITIES	**-**	**-**
Pre-tax profit	**-**	**-**
20) Income taxes for the year	**-**	**-**
a) Current taxes	-	-
b) Deferred tax liabilities	-	-
c) Deferred tax assets	-	-
d) Income (expenses) from joining the tax consolidation/tax transparency scheme	-	-
21) Profit/(Loss) for the year	**-**	**-**

PROFIT AND LOSS ACCOUNT - TRADE DETAIL

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
A) VALUE OF PRODUCTION	**103,717**	**97,133**
1) Turnover from sales and services	**-**	**-**
2) Changes in inventories of work in progress, semi-finished and finished products	**-**	**-**
3) Changes in contract work in progress	**-**	**-**
4) Increases in fixed assets for internal work	**-**	**-**
5) Other revenue and income:	**103,717**	**97,133**
a) Various	85,197	97,133
b) HT grants:	-	-
of which HT Operating grants	-	-
of which HT Capital grants	-	-
c) CITT grants	-	-
of which CITT Capital grants	-	-
of which CITT Operating grants	-	-
d) National Facilities grants	-	-
e) Other Entities Grants	18,520	-
of which other entities capital grants	-	-
of which other entities operating grants	18,520	-
B) COSTS OF PRODUCTION	**453,450**	**620,171**
6) Purchases of raw materials, consumables and goods	**3,567**	**(112)**
7) Expenses for services	**115,226**	**259,439**
8) Costs for use of third party assets	**3,326**	**-**
9) Personnel expenses	**28,561**	**73,197**
a) Wages, salaries	20,960	55,613
b) Social security contributions	5,488	13,625

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
c) Severance pay	1,200	2,964
d) Pensions and similar costs	-	-
e) Other costs	913	995
10) Amortisation, depreciation and write-downs	**290,722**	**276,219**
a) Amortisation of intangible assets	-	-
b) Depreciation of tangible assets	290,722	276,219
c) Other write-downs of fixed assets	-	-
d) Write-downs of current receivables and cash and cash equivalents	-	-
11) Changes in inventories of raw, ancillary and consumable materials and goods	**-**	**-**
12) Provision for risks	**-**	**-**
13) Other provisions	**-**	**-**
14) Other operating costs	**12,048**	**11,429**
Difference between value and costs of production	**(349,733)**	**(523,037)**
C) FINANCIAL INCOME AND EXPENSES	**1,066**	**-**
17) Interest and other financial charges:	**-**	**-**
17 bis) Foreign exchange gains and losses	**1,066**	**-**
D) VALUE ADJUSTMENTS TO FINANCIAL ASSETS AND LIABILITIES	**-**	**-**
Pre-tax profit	**(350,799)**	**(523,037)**
20) Income taxes for the year	**98,925**	**195,131**
a) Current taxes	98,925	195,131
b) Deferred tax liabilities	-	-
c) Deferred tax assets	-	-
d) Income (expenses) from joining the tax consolidation/tax transparency scheme	-	-
21) Profit/(Loss) for the year	**(449,724)**	**(718,169)**

Notes to the Financial Statements

PART A - INTRODUCTION

The Human Technopole Foundation was established by Article 1, paragraph 116, Law No. 232 of 11 December 2016.

The year ended 31 December 2024 represented the Human Technopole Foundation's seventh year of activity and, as in the previous year, was characterised by the increase in scientific operations based on the research and infrastructural development of the HT Campus. In order to complete Campus construction and thus increase research activity thanks to more laboratories and research infrastructures, the final South Building and Technological Pole project was approved by both the Management Committee and the Supervisory Board at the end of the year.

The values shown in these financial statements take into account the provisions contained in the Agreement provided for by the Budget Law of 27 December 2019 no. 160, Article 1 - paragraphs 275 to 277, which the Human Technopole Foundation signed on 30 December 2020 with the founding Ministries - Ministry of University and Research, Ministry of Economy and Finance and Ministry of Health.

In more detail, the Agreement assigns the Human Technopole Foundation, as part of its mission as an infrastructural scientific pole supporting national scientific research, the task of supporting newly identified "infrastructural scientific facilities", defined as "facilities, resources and related services used by the scientific community to conduct high-quality research in their respective fields, without any official or national affiliation".

Within the scope of this mandate, the Human Technopole Foundation is, inter alia, requested to allocate a share of no less than 55% (fifty-five per cent) per year of the public funding granted to the Human Technopole Foundation pursuant to Article 1, paragraph 121, of Law no. 232 of 11 December 2016, excluding, however, from its 'scope' "the facilities under construction in accordance with the provisions of the Multi-Year Scientific Activity Programme Plan referred to in Articles 13.3(b) and 18.2(a) of the Articles of Association of the Human Technopole Foundation (Strategic Plan), and the resources required for their implementation, operation and maintenance".

These financial statements, submitted for your examination and approval, show a positive operating result for the year of €5,971.

Data on public/private grants received and the related use of financial resources are highlighted below. For 2018, 2019, 2020, 2021 and 2022, the residual liquidity at the end of each financial year is shown, while for the financial years 2023 and 2024, the incomes and their use are detailed. As at 31 December 2024, residual liquidity amounted to €588,052,939.

YEAR	BUSINESS	AMOUNT (EURO)
2018-2019	**Liquidity as at 31.12.2019**	**79,160,927**
2020	**Liquidity as at 31.12.2020**	**83,552,616**
2021	**Liquidity as at 31.12.2021**	**60,479,034**
2022	**Liquidity as at 31.12.2022**	**113,929,929**
2023	**Liquidity as at 31.12.2023**	**419,566,523**
2024	Amount of grant received on 09.02.2024 BDI	35,075,000
	Amount of grant received on 07.05.2024 BDI	35,075,000
	Amount of grant received on 16.05.2024 BDI	12,335,218
	Amount of grant received on 11.07.2024 BDI	35,075,000
	Amount of grant received on 22.10.2024 BDI	35,075,000
	Amount of grant received on 06.12.2024 BDI	82,999,221
	Amount received on 05.02.2024 (EI29A SILICON VALLEY)	150,702
	Amount received on 12.01.2024 (EI06A The European Molecular Foster)	33,000
	Amount received on 12.01.2024 (EI15A The European Molecular Colombo)	44,000
	Amount received on 19.01.2024 (EI22A Universiteit Maastricht)	162,305
	Amount received on 25. 01.2024 (EI20A EMBO-Casanal-Fellow Leroy)	67,200
	Amount received on 25. 01.2024 (EI19A EMBO-Vannini-Fellow Borsellini)	67,200
	Amount received on 25. 01.2024 (EI24A EMBO-Casanal-Fellow Sponga)	61,600
	Amount received on 06. 02.2024 (EI18A AIRC-Kalebic-MFAG 2022)	96,443
	Amount received on 26. 02.2024 (EI34A DARC MATTER)	1,197,349
	Amount received on 27. 02.2024 (EI35A DepSHOCK)	1,199,673

YEAR	BUSINESS	AMOUNT (EURO)
2024	Amount received on 06. 03.2024 (EI14A AI4LIFE)	76,700
	Amount received on 13. 03.2024 (EI37A AIRC-Sottoriva-IG2023)	405,000
	Amount received on 14. 03.2024 (EI32A AIRC-Sottoriva-IG2023)	122,380
	Amount received on 09. 04.2024 (EI21A Imagine di Jug)	66,456
	Amount received on 16. 04.2024 (EI39A AIRC-Iorio-IG2023)	195,000
	Amount received on 22. 04.2024 (EI03A ERC-Pigino-CiliaTubulinCode MPI-CBG)	96,705
	Amount received on 21.06.2024 (EI33A BBRF - NARSD)	16,184
	Amount received on 01.08.2024 (EI40A PD HFSP fellowship)	31,194
	Amount received on 02.08.2024 (EI48A SVCF-Phenotypic Prediction from Populationscale Single-cell RNA-seq (DI3))	101,784
	Amount received on 18.09.2024 (EI12A NEUROCOV)	253,647
	Amount received on 02.10.2024 (EI21A Imagine by Jug)	46,375
	Amount received on 03.10.2024 (EI13A Institut Pasteur R2D2)	56,792
	Amount received on 24.10.2024 (EI16A EUREKA)	36,443
	Amount received on 24.10.2024 (EI30A EUREKA-Pinheiro-Valsecchi)	37,150
	Amount received on 4.11.2024 (EC06A Milan RNA Salon)	1,339
	Amount received on 18.11.2024 (EI27A PhD Scholarship Nerviano Medical Science - Iorio-PhD)	40,443
	Amount received on 22.11.2024 (EI31A Development of a highly defined human pluripotent stem cell-derived brainstem encephalitis model)	50,000
	Amount received on 27.11.2024 (EC07A EMBO-W25-01)	17,500
	Amount received on 10.12.2024 (EI42A GoE)	896,575
	Amount received on 18.12.2024 (EI52A Start up 2024 Giustacchini)	199,238
	Amount received on 23.12.2024 (EI43A COV/DRisk/D donation)	25,000
	Amount received on 23.12.2024 (EI41A MSCA Fellowship)	112,288
	Net disbursements from 01.01.2024 to 31.12.2024 (Banca Intesa) and cash	(73,111,687)
	Liquidity as at 31.12.2024	**588,052,939**

SIGNIFICANT EVENTS DURING THE YEAR

Reference is made in full to what has already been outlined in the Management Report.

PREPARATION CRITERIA

The Financial Statements for the year ended 31 December 2024 were prepared in accordance with Articles 2423 et seq. of the Italian Civil Code, adopting the extended form, even though the prerequisites set forth in Article 2435-bis for preparing them in an abridged form are met. The criteria used in drafting and evaluation take into account the standards in the national legal system pursuant to Leg. Decree No. 139/2015, through which Directive 2013/34/EU was implemented.
The book values are expressed in € by rounding off the relevant amounts. Any differences from rounding have been reported in the item "€ rounding Reserve" among Equity items. Pursuant to article 2423, subsection six, of the Italian Civil Code, the Notes to the Financial Statements have been prepared in thousands of €. These Notes to the Financial Statements present information on the items of the balance sheet and Profit and Loss Account in the order these items are indicated in the financial statements.

BASIS OF PREPARATION

The valuation of financial statement items has been made on the basis of general policies of prudence and competence with a going concern perspective. In compliance with the accrual basis, the effect of the transactions and of the other events has been accounted for and attributed to the fiscal year which such transactions and events refer to and not to the one when the relating cash flows (collections and payments) occur.

In accordance with the principle of relevance, the recognition, measurement, presentation and disclosure requirements have not been complied with when their observance would have an immaterial effect on the truthful and accurate overview.
Continuity of application of the measurement policies over time is an essential element for the purposes of comparability of the company's financial statements during the various years.

Balance sheet items have been stated and presented by taking the substance of the transaction or contract into account. The Financial Statements consist of the 'Balance Sheet', the 'Profit and Loss Account', the 'Cash Flow Statement', the 'Notes to the Financial Statements' and are accompanied by the 'Management Report'.

The 'Balance Sheet' is arranged by macro-classes, according to the criterion of increasing liquidity, while the groupings and items are subdivided by type. The various balance sheet items are shown net of the relevant adjustment items.

The memorandum accounts are no longer shown in the balance sheet and are described in these Notes to the Financial Statements.

The 'Profit and Loss Account' has been prepared in accordance with the format set by Article 2425 of the Civil Code and represents economic transactions.
The scheme is characterised by the cost and revenue structure of the production carried out, with a development in scalar form and whose content reflects a sorting of costs by type.

The Profit and Loss Account is subdivided into areas showing:

- **Ordinary operations**, (items A and B), which consists of the typical and non-typical activities of the Human Technopole Foundation and whose economic result is indicated by the definition: 'Difference between value and costs of production';

- **Financial transactions,** (items C and D), which refers to expenses and income arising from the provision of monetary funds and their temporary investment pending their use in ordinary operations;

- **Income taxes, (item 20),** consist of direct taxes (IRAP and IRES) on the taxable income for the year. They were accounted for by taking into account taxable income for the year and according to current tax regulations. At the balance sheet date, there were no deferred tax liabilities or deferred tax assets.

The comparison with the previous accounting period is implemented by indicating in two separate columns the balance for the current year and the balance for the previous year.

The Cash Flow Statement constitutes an element of the Financial Statements. It should be noted that the Human Technopole Foundation, in complying with the provisions of OIC (Italian Accounting Body) 10, has adopted the indirect method.

The Notes to the Financial Statements have been prepared with the aim of clarifying, completing and analysing the information contained in the Balance Sheet, Profit and Loss Account and Cash Flow Statement, as well as providing information on the valuation criteria applied, the transactions that occurred and the changes in the various asset and liability items.

They form an integral part of these Financial Statements and provide descriptive and tabular information, with particular reference to the asset, economic and financial aspects of operations.

EXCEPTIONAL EVENTS PURSUANT TO ARTICLE 2423, FIFTH PARAGRAPH OF THE ITALIAN CIVIL CODE

There have been no exceptional events requiring recourse to derogations under Art. 2423, subsection 5 of the Italian Civil Code.

MEASUREMENT BASES APPLIED

FIXED ASSETS

Intangible assets

They are recorded at historical acquisition cost, including accessory charges and VAT (where this is considered non-deductible as a result of being allocated to official activities) and shown net of depreciation charged directly to the individual items over the years.
Industrial patents and intellectual property have a useful life of 5 years, while licences, concessions and trademarks and likewise the software programmes used have a useful life of 3 years.
Regardless of any depreciation already recognised, if there is impairment the asset is written down accordingly. If the reasons for the write-down no longer apply in the subsequent years, the original value is posted, adjusted according to the sole amortisations.

Tangible assets

Tangible assets are recorded at purchase cost including accessory charges and non-deductible VAT and adjusted by the corresponding depreciation provisions.
Amortisation, charged to the Profit and loss account, was calculated based on use, destination and economic-technical life of the assets, based on the remaining useful life criterion, a criterion we believe is well represented by the following rates, reduced by half in the year in which the asset became operational:

ASSET TYPE	% AMORTISATION
Industrial buildings	3%
Plant and machinery	15%
Furniture	12%
Laboratory furniture and furnishings	10%
Commercial furniture	15%
Laboratory equipment	20%
General plant and equipment	10%
Electronic office machines	20%
Light construction	10%

Regardless of any depreciation already recognised, if there is impairment the asset is written down accordingly. If the reasons for the write-down no longer apply in the subsequent years, the original value is posted, adjusted according to the sole amortisations.

INVENTORIES

Inventories at 31 December 2024 are valued using the same valuation method as in 2023, which is weighted average cost.

RECEIVABLES

They are stated at their estimated realisable value and without using the amortised cost method, taking into account that all receivables have short-term collectability and therefore the application of the amortised cost method would have insignificant effects.

CURRENT FINANCIAL ASSETS

As of the 2016 financial year, accounting standard OIC 14 has changed the classification and valuation of cash and cash equivalents by restricting them to bank and post office current accounts that are collectible on a spot basis and usable for any business purpose. In light of these provisions, we highlight two important aspects concerning the assets held in the treasury accounts with the Bank of Italy in the name of the Human Technopole Foundation:

- they are devoid of the spot collectability requirement (given the procedure and withdrawal limits imposed by law and the guidelines agreed with the Ragioneria Generale dello Stato (RGS);
- they have strong similarities with the centralised treasury management methods, given the Human Technopole Foundation's impossibility to access these funds directly, but only after a request for authorisation and transfer forwarded to the RGS.

In accordance with the provisions of the new OIC 14, these assets of the Human Technopole Foundation, which are held in treasury accounts with the Bank of Italy, are therefore recorded under 'Financial assets not constituting fixed assets' at nominal value.

EQUITY

The equity of non-commercial entities is intended on a lasting basis to support the acquisition of the necessary production factors of both current and investment nature; its nature can therefore be defined as a purpose fund, to be allocated to the achievement of the statutory purposes.

PAYABLES

Payables are recorded at their nominal value, which is considered representative of their extinction value and substantially in line with the amortised cost criterion.
Payables in foreign currencies have been accounted for on the basis of the exchange rates on the date on which the relevant transactions were carried out; positive or negative differences arising from the valuation of foreign currency items at the year-end exchange rate are respectively credited and debited to the year.
In addition to the value of payables for invoices received, 'Trade payables' include the value of invoices to be received for services rendered and orders delivered, which had not been invoiced by the balance sheet date.

"Tax payables" include liabilities for withholding taxes as withholding agent, direct taxes for the year represented by IRAP and IRES, as well as indirect taxes. The latter are determined in accordance with a realistic forecast of the tax liability to be paid, taking into account current tax legislation, and are shown net of advance payments.
'Payables to social security institutions' include social security charges relating to employees and personnel, accrued and unpaid at the end of the year, including payables to supplementary pension funds for those who have availed themselves of the option provided for by Law No. 296 of 27.12.2006 concerning the allocation of severance indemnity as from 01.01.2007.
'Other payables' comprise residual payables, not included, by their nature, in the previous items, including payables to employees for all liabilities accrued towards them, in accordance with cur-

rent legislation, including the value of accrued and untaken holiday leave and other benefits at the balance sheet date.
The item 'Other payables from internal recharges' includes cost recharges between the various funds (projects).

ACCRUALS AND DEFERRALS

These were determined on an accrual basis.
The item 'prepayments' includes costs incurred before the end of the financial year for the portion pertaining to the following year.
Deferred income includes income realised before the end of the financial year, but accruing in the following year.

PROVISION FOR RISKS

Provisions for risks and charges represent liabilities of a definite nature, certain or probable, with an indefinite date of occurrence or amount. These are, therefore, contingent liabilities connected with situations already existing at the balance sheet date and related to obligations already undertaken at the balance sheet date, but characterised by a state of uncertainty whose outcome depends on the occurrence or non-occurrence of one or more events in the future and, therefore, will have a cash impact in subsequent years.

Potentiality is defined as a situation, condition or event existing at the balance sheet date, characterised by a state of uncertainty, which, on the occurrence or non-occurrence of one or more future events, may result in a loss (contingent liability) or a gain (contingent asset).

Depending on the degree of realisation and occurrence, future events can be classified as probable, possible or remote. An event is probable when its occurrence is considered more likely than not. An event is possible when it depends on a circumstance that may or may not occur. An event is remote when it has very little chance of occurring.

PROVISION FOR SEVERANCE INDEMNITIES

This represents the actual debt accrued towards employees, in accordance with the law and current employment contracts, taking into account all forms of ongoing remuneration.
The provision corresponds to the total of individual indemnities accrued in favour of employees at the balance sheet date and is equal to the amount that would have been payable to employees if they had terminated their employment at that date. It should be noted that the value included in this item relates to the severance pay accruals that most employees decided to keep within the company, not availing themselves of the option provided for by Law No. 296 of 27.12.2006 to pay the severance pay accrued from 1.1.2007 to Supplementary Pension Funds.

INCOME TAXES

Taxes are set aside on an accrual basis and according to current tax regulations.

At the balance sheet date, there were no deferred tax liabilities or deferred tax assets.

INCOME AND EXPENSES

Income and expenses are recognised on an accrual basis, irrespective of the date of receipt and payment, and in accordance with the principle of prudence, also in view of the preservation of the value of the Human Technopole Foundation's assets and on a going concern basis.

OPERATING GRANTS

Pursuant to Accounting Principle No. 1 for non-profit organisations, operating grants received, whether by law or under contractual provisions, related to specific activities of the Human Technopole Foundation, are recognised on an accrual basis, based on the costs incurred to which they relate, regardless of their receipt.
In this regard, in fact, the principle provides that "where a correlation can be discerned between income, even of a non-monetary nature, it may be correlated with the expenses of the financial year. This correlation is a fundamental corollary of the principle of the accrual basis of operational events characterising official activities and expresses the need to set off the expenses of the financial year, whether certain or presumed, against the related income." Since these grants are specifically for the ordinary activities of the Human Technopole Foundation, they are recognised in the Profit and Loss Account under item A5) Other revenues and income, where they are shown separately under the sub-item 'Operating grants'.
The costs pertaining to the year are partly covered through the use of the grant deferred in the previous year, through the entry of the portion pertaining to the future in the item of deferred income, and partly through the use of the 'Management fund'.

CAPITAL GRANTS

Grants that are fully collected are entered in the balance sheet under deferred income and are reduced at the end of each tax period by charging to the profit and loss account an annual portion determined according to the useful life of the asset acquired.

In application of the principles set forth in OIC No. 16, F.II.a) capital grants received from the State (included in the mixed grant granted annually in relation to investment plans destined both to expenses for the acquisition of depreciable instrumental goods and to expenses of a different nature with specific reference to orders formalised by the end of the financial year) are also recognised with this criterion for the portion destined to acquire tangible fixed assets, commensurate with the cost of the investments and with the allocation constraint connected to the mission of the Human Technopole Foundation under the law and the articles of association.

The accounting treatment of capital grants adopted is that of the "income method", according to which the amount of the grant, charged to the Profit and Loss Account under "other revenues and income", is deferred on an accrual basis to subsequent years through the recording of deferred income, with depreciation charged to the Profit and Loss Account calculated on the gross cost of the assets equal to the portion of the grant pertaining to the year.

OTHER ENTITIES GRANTS

Grants that relate to European research projects and other similar funding from other entities (from bank foundations or other public or private institutions) with the adoption of the accounting principle for non-profit entities No. 1 are charged, at the time of disbursement, to deferred income and, at the end of the financial year, charged to income on the basis of the costs incurred (if the grant was made during the year).

OTHER REVENUES AND INCOME

This item includes all positive non-financial income components relating to ancillary activities, which in the case of the Human Technopole Foundation mainly refer to the rental of certain spaces used for commercial activities. This item also includes fees received from other organisations in connection with scientific projects of a commercial nature.

ORDER ACCOUNTS

The commitments undertaken by the Human Technopole Foundation are set out in the appropriate section of the notes to the financial statements. In particular, there is evidence of the value of contracts for which there is a revocable commitment to make future disbursements.

PART B - INFORMATION ON THE BALANCE SHEET - ASSETS

FIXED ASSETS

INTANGIBLE ASSETS

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
155,164	173,257	(18,093)

Compared to last year, this item showed a negative change of €18,093.
This change stems from the fact that depreciation for the year was higher than the investments made, such as:

- purchase of a Colony management software, amounting to €59,187, to manage information (genetic background, treatments, research protocols, authorised users within each project, animal health and welfare monitoring, Facility resource management, traceability and reporting);
- capitalisation of patent registration fees in connection with the study to differentiate human pluripotent cells into specific brainstem neurons, in the amount of €6,470.

CHANGES IN INTANGIBLE FIXED ASSETS

	START-UP AND EXPANSION COSTS	DEVELOPMENT COSTS	INDUSTRIAL PATENTS AND INTELLECTUAL PROPERTY RIGHTS	CONCESSIONS, LICENCES, TRADEMARKS AND SIMILAR RIGHTS	GOODWILL	INTANGIBLE FIXED ASSETS IN PROGRESS AND ADVANCES	OTHER INTANGIBLE ASSETS	TOTAL INTANGIBLE FIXED ASSETS
VALUE AT BEGINNING OF YEAR								
Cost	-	-	-	156,059	-	-	146,726	**302,785**
Write-ups	-	-	-	-	-	-	-	**-**
Amortisation (accumulated amortisation)	-	-	-	(85,063)	-	-	(44,465)	**(129,528)**
Write-downs	-	-	-	-	-	-	-	**-**
Carrying amount	-	-	-	70,996	-	-	102,261	**173,257**
CHANGES DURING THE YEAR								
Increases for acquisitions	-	-	6,470	57,906	-	1,537	-	**65,914**
Reclassifications (of carrying amount)	-	-	-	1,537	-	(1,537)	-	**-**
Decreases due to sale and divestiture (of the carrying amount)	-	-	-	-	-	-	-	**-**
Revaluations performed during the year	-	-	-	-	-	-	-	**-**
Amortisation for the year	-	-	(647)	(65,018)	-	-	(18,341)	**(84,007)**
Write-downs performed during the year	-	-	-	-	-	-	-	**-**
Other changes	-	-	-	-	-	-	-	**-**
Total changes	-	-	5,823	(5,575)	-	-	(18,341)	**(18,093)**
VALUE AT END OF YEAR								
Cost	-	-	6,470	215,502	-	-	146,726	**368,698**
Write-ups	-	-	-	-	-	-	-	**-**
Amortisation (accumulated amortisation)	-	-	(647)	(150,081)	-	-	(62,806)	**(213,534)**
Write-downs performed during the year	-	-	-	-	-	-	-	**-**
Carrying amount	-	-	5,823	65,421	-	-	83,920	**155,164**

TANGIBLE ASSETS

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
130,976,992	131,187,904	(210,912)

CHANGES IN TANGIBLE FIXED ASSETS

	LAND AND BUILDINGS	PLANT AND MACHINERY	INDUSTRIAL AND COMMERCIAL EQUIPMENT	OTHER ASSETS	TANGIBLE FIXED ASSETS IN PROGRESS AND ADVANCES	OTHERS	TOTAL TANGIBLE FIXED ASSETS
VALUE AT BEGINNING OF YEAR							
Cost	75,339,167	3,101,140	49,472,161	33,828,755	4,782,363	58,910	**166,582,496**
Write-ups	-	-	-	-	-	-	**-**
Depreciation (accumulated depreciation)	(6,149,557)	(697,548)	(19,604,960)	(8,930,441)	-	-	**(35,382,506)**
Write-downs	-	-	-	(12,086)	-	-	**(12,086)**
Carrying amount	69,189,610	2,403,592	29,867,201	24,886,228	4,782,363	58,910	**131,187,904**
CHANGES DURING THE YEAR							
Increases for acquisitions	1,360,951	683,053	12,338,743	3,646,172	858,660	-	**18,887,579**
Reclassifications (of carrying amount)	-	-	1,840,491	446,550	(2,287,041)	-	**-**
Decreases due to sale and divestiture (of the carrying amount)	-	-	-	-	-	-	**-**
Revaluations performed during the year	-	-	-	-	-	-	**-**
Depreciation for the year	(2,211,934)	(387,704)	(11,697,691)	(4,801,161)	-	-	**(19,098,490)**
Write-downs performed during the year	-	-	-	-	-	-	**-**
Other changes	-	-	-	-	-	-	**-**
Total changes	(850,983)	295,349	2,481,543	(708,439)	(1,428,382)	-	**(210,912)**
VALUE AT END OF YEAR							
Cost	76,700,118	3,784,194	63,651,395	37,921,477	3,353,981	58,910	**185,470,075**
Write-ups	-	-	-	-	-	-	**-**
Depreciation (accumulated depreciation)	(8,361,491)	(1,085,253)	(31,302,651)	(13,731,602)	-	-	**(54,480,997)**
Write-downs performed during the year	-	-	-	(12,086)	-	-	**(12,086)**
CARRYING AMOUNT	**68,338,627**	**2,698,941**	**32,348,744**	**24,177,789**	**3,353,981**	**58,910**	**130,976,992**

The negative change from the previous year was €210,912.

This change is due to depreciation exceeding new investments. More specifically, new investments in 2023 amounted to €21,323,082 compared to €18,887,578 in 2024.

The change in the item 'Land and Buildings' amounting to €1,360,951 is mainly attributable to the works for the construction of a BSL3 laboratory within the South Pavilion (SPA), amounting to about €545 thousand, the final and executive design of the new Headquarters amounting to about €404 thousand and works for the implementation of the North Pavilion National Facilities (Phase 1) amounting to about €129 thousand.

The increase in the item 'plant and machinery', amounting to €683,053, relates to the supply of audiovisual equipment for the auditorium for about €169,000 and the construction of the nitrogen distribution network within the Foundation's Campus for about €514,000.

The increase in the item 'industrial and commercial equipment' of about €14,179.234 is mainly due to the purchase of instruments for cryogen-free magnetic resonance (€2.3 million), automation systems for the generation of organoids and iPSC (€1.3 million), the UV nanodrop spectrophotometer (€1.2 million), the purchase of a cell counting microscope (€988,000), the purchase of the BD Facsdiscover S8 Cell Sorter (€970,000), the purchase of a microscope based on STED technology (€973,000), the supply of a spectrum analyser for flow cytometers (€1.4 million).

The increase in the item 'others' was €4,092,722.

The change in the item 'Other Assets' is broken down as follows:

OTHER TANGIBLE ASSETS	FURNITURE AND FURNISHINGS	LIGHT CONSTRUCTION	LABORATORY FURNITURE AND FIXTURES	ELECTROMECHANICAL AND ELECTRONIC OFFICE MACHINES	MOBILE PHONES
Historical cost	1,434,464	16,970,297	7,148,801	8,275,192	-
Depreciation previous years	(251,939)	(4,204,011)	(1,353,345)	(3,121,146)	-
Write-down for the year	(172)	-	-	(11,914)	-
BALANCE AT 31/12/2023	**1,182,354**	**12,766,286**	**5,795,456**	**5,142,132**	**-**
Purchases during the year	83,770	72,632	607,897	3,328,422	-
Depreciation for the year	(226,618)	(1,700,661)	(745,721)	(2,128,160)	-
BALANCE AT 31/12/2024	**1,039,506**	**11,138,257**	**5,657,632**	**6,342,394**	**-**

- The increase in 'Furniture and fixtures' and 'Laboratory furniture and fixtures' is attributable to the purchase of new furniture for Palazzo Italia and new laboratory furniture;
- the increase in 'Light construction' is attributable to the supply of the HPLC Vanquish FLEX DUAL laboratory instrument;
- the increase in the item 'Electromechanical and electronic office machines' mainly refers to the purchase of a videoconferencing system (€1.7 million), the purchase of a high-capacity storage system (€1 million), and the supply of Load Balancer type network components (€359 thousand).

The item 'Tangible assets in progress and advances' increased by €858,660, mainly for the purchase of a videoconferencing system (€204,000), the technical-economic feasibility project for cryo-em expansion (€173,000), and a microscope based on STED technology (€123,000).

It should be noted that reclassifications were made in the year 2024 from the item 'Tangible fixed assets in progress and advances' to 'Tangible fixed assets' for approximately €2.3 million.

CURRENT ASSETS

INVENTORIES

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
106,569	82,084	24,485

INVENTORIES	VALUE AT BEGINNING OF YEAR	CHANGE DURING THE YEAR	VALUE AT END OF YEAR
Raw materials, consumables and goods	82,084	24,485	106,569
TOTAL INVENTORIES	**82,084**	**24,485**	**106,569**

Inventories are valued, as in the previous year, at weighted average cost. Compared to the year 2023, inventories increased by €24,485.

RECEIVABLES REPORTED IN CURRENT ASSETS

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
57,284,119	151,320,628	(94,036,509)

Changes and due date of receivables included in the current assets:

	VALUE AT BEGINNING OF YEAR	CHANGE DURING THE YEAR	VALUE AT END OF YEAR	PORTION DUE WITHIN ONE YEAR	PORTION DUE AFTER ONE YEAR	OF WHICH WITH A REMAINING DURATION BEYOND 5 YEARS
Trade receivables reported in current assets	116,526	91,308	207,835	207,835	-	-
Tax receivables	179,855	149,487	329,342	329,342	-	-
Receivables due from others reported in current assets	150,582,368	(94,281,343)	56,301,024	56,301,024	-	-
Other receivables from internal recharges	441,879	4,039	445,918	445,918	-	-
TOTAL RECEIVABLES REPORTED IN CURRENT ASSETS	**151,320,628**	**(94,036,509)**	**57,284,119**	**57,284,119**	**-**	**-**

The item 'Trade receivables' as at 31/12/2024 is broken down as follows:

DESCRIPTION	AMOUNT (€)
Trade receivables - Italy	2,582
Trade receivables - Foreign	202,175
Receivables for invoices to be issued to customers - Italy	3,077
Receivables for invoices to be issued to foreign customers	-
TOTAL	**207,835**

We highlight the receivable of about €202 thousand representing the exposure under the Sanger research project.

The item 'Tax receivables' as of 31 December 2024, amounting to €329,342, is broken down as follows:

DESCRIPTION	AMOUNT (€)
Receivable from the tax authorities for VAT	128,859
Receivable for IRES	82,396
Receivable for IRAP	118,087
TOTAL	**329,342**

This item was affected by higher advance payments of IRES and IRAP in 2024, which were calculated on the basis of the 2023 taxable income (historical criterion).

Compared to the previous year, the tax calculation showed a decrease in the value of taxes, mainly determined by:

- the doubling of the cost of researchers from €5,728,545 to €11,045,787;
- the amount of income from commercial activities compared to total income, which decreased in 2024.

The item 'Receivables from others' as of 31 December 2024, amounting to €56,155,895, is broken down as follows:

DESCRIPTION	AMOUNT (€)
Receivables from the State for grants to be disbursed	54,392,787
Credit notes to be received	596,647
Others	1,311,591
TOTAL	**56,301,024**

Compared to last year, there was a clear decrease in 'receivables from the State' due to the significant transfers of financial resources to the centralised account of the Bank of Italy by the MEF.

The item 'Receivables from State for grants to be disbursed' amounts to €54,392,787 and consists of the grants indicated in Article 1, paragraph 121 of Law No. 232 of 11 December 2016, relating to the years 2018 and 2020 for HT amounting to €48,392,787 and the grants pursuant to Law Decree No. 34/2020 (CITT) relating to the year 2022, 2023 and 2024 amounting to €6,000,000, for the portion not collected at the closing date of the financial year, as summarised in the following tables:

PERIOD	GRANTS PURSUANT TO LAW 232/2016	GRANTS DISBURSED AS AT 31.12.2019	REMAINING GRANTS AS AT 31.12.2019	GRANTS DISBURSED AS AT 31.12.2020	REMAINING GRANTS AS AT 31.12.2020	GRANTS DISBURSED AS AT 31.12.2021	REMAINING GRANTS AS AT 31.12.2021	GRANTS DISBURSED AS AT 31.12.2022	REMAINING GRANTS AS AT 31.12.2022	GRANTS DISBURSED AS AT 31.12.2023	REMAINING GRANTS AS AT 31.12.2023	GRANTS DISBURSED AS AT 31.12.2024	REMAINING GRANTS AS AT 31.12.2024
2017	10,000,000	6,531,520	3,468,480	3,468,480	-	-	-	-	-	-	-	-	-
2018	114,300,000	-	114,300,000	56,350,370	57,949,630	56,561,038	1,388,592	-	1,388,592	-	1,388,592	-	1,388,591
2019	136,500,000	-	136,500,000	-	136,500,000	-	136,500,000	-	136,500,000	136,500,000	-	-	-
2020	112,100,000	-	-	-	112,100,000	-	112,100,000	22,760,586	89,339,414	30,000,000	59,339,414	12,335,218	47,004,196
2021	122,100,000	-	-	-	-	-	122,100,000	51,113,663	70,986,337	70,986,337	-	-	-
2022	133,600,000	-	-	-	-	-	-	50,600,779	82,999,221	-	82,999,220	82,999,220	-
2023	140,300,000	-	-	-	-	-	-	-	-	140,300,000	-	-	-
2024	140,300,000	-	-	-	-	-	-	-	-	-	-	140,300,000	-
TOTAL	**909,200,000**	**6,531,520**	**254,268,480**	**59,818,850**	**306,549,630**	**56,561,038**	**372,088,592**	**124,475,028**	**381,213,564**	**377,786,337**	**143,727,226**	**235,634,438**	**48,392,787**

PERIOD	GRANTS UNDER LAW DECREE 34/2020 (CITT)	GRANTS DISBURSED AS AT 31.12.2019	REMAINING GRANTS AS AT 31.12.2019	GRANTS DISBURSED AS AT 31.12.2020	REMAINING GRANTS AS AT 31.12.2020	GRANTS DISBURSED AS AT 31.12.2021	REMAINING GRANTS AS AT 31.12.2021	GRANTS DISBURSED AS AT 31.12.2022	REMAINING GRANTS AS AT 31.12.2022	GRANTS DISBURSED AS AT 31.12.2023	REMAINING GRANTS AS AT 31.12.2023	GRANTS DISBURSED AS AT 31.12.2024	REMAINING GRANTS AS AT 31.12.2024
2020	10,000,000	-	-	10,000,000	-	-	-	-	-	-	-	-	-
2021	2,000,000	-	-	-	-	-	2,000,000	-	2,000,000	(2,000,000)	-	-	-
2022	2,000,000	-	-	-	-	-	-	-	2,000,000	-	2,000,000	-	2,000,000
2023	2,000,000	-	-	-	-	-	-	-	-	-	2,000,000	-	2,000,000
2024	2,000,000	-	-	-	-	-	-	-	-	-	-	-	2,000,000
TOTAL	**18,000,000**	**-**	**-**	**10,000,000**	**-**	**-**	**2,000,000**	**-**	**4,000,000**	**(2,000,000)**	**4,000,000**	**-**	**6,000,000**

With regard to 'Credit notes to be received', it should be noted that the balance is especially determined by invoices received with incorrect VAT application (split payment). The account was opened in order to ensure that erroneous documents awaiting Credit Notes were accounted for.

The item 'Other' is largely attributable to advance payments to suppliers in the amount of €1,311,591 as contractually agreed.

BREAKDOWN OF CURRENT RECEIVABLES BY GEOGRAPHICAL SEGMENT

The breakdown of receivables at 31 December 2024 by geographical area is not significant.

CURRENT FINANCIAL ASSETS

Changes in current financial assets:

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
566,345,776	377,786,336	188,559,439

DESCRIPTION	VALUE AT BEGINNING OF YEAR	CHANGES DURING THE YEAR	VALUE AT END OF YEAR
Non-interest-bearing accounts with the Central State Treasury	377,786,337	188,559,439	566,345,776
TOTAL FINANCIAL ASSETS WHICH DO NOT CONSTITUTE FIXED ASSETS	**377,786,337**	**188,559,439**	**566,345,776**

Paragraph 4 Article 49-bis of Decree-Law No. 34 of 19 May 2020, converted with amendments by Law No. 77 of 17 July 2020, added the following sentence to the Law establishing the Human Technopole Foundation, in particular, to Article 1, paragraph 121 of Law No. 232/2016: "The grants to the Endowment Fund and to the Management Fund of the Human Technopole Foundation charged to the State budget shall be credited to a non-interest-bearing account opened with the State Treasury, in the name of the Human Technopole Foundation". Therefore, in compliance with the regulatory provisions, the non-interest-bearing current account No. 25084 at the Central State Treasury was opened. This account is credited with the annual grant and the sum necessary for the Human Technopole Foundation's activities is transferred to the treasury account opened with Banca Intesa in the manner set forth in Ministerial Decree MEF 49506 of 16 June 2010 and subsequent guidelines.

The balance as at 31/12/2024 is derived from the amount of the grant portion received during the fiscal years 2020 to 2024 and any transfers to the treasury account. It should be noted in particular that this balance includes, inter alia, the financial advance received from the Human Technopole Foundation, amounting to €330 million, to cover the estimated construction costs of the new South Building.

CASH AND CASH EQUIVALENTS

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
21,707,163	41,780,186	(20,073,023)

DESCRIPTION	VALUE AT BEGINNING OF YEAR	CHANGES DURING THE YEAR	VALUE AT END OF YEAR
Bank and postal deposits	41,779,300	(20,073,280)	21,706,021
Cheques	-	-	-
Cash-in-hand and cash equivalents	886	257	1,143
TOTAL CASH AND CASH EQUIVALENTS	**41,780,186**	**(20,073,023)**	**21,707,163**

The balance represents cash and cash equivalents and the existence of cash and valuables at the end of the financial year.

The item 'Bank and postal deposits' as of 31/12/2024, amounting to €21,706,021, is broken down as follows:

DESCRIPTION	AMOUNT (€)
Banca Intesa account no. 176258	8,846,209
Banca Intesa account no. 17247 Non-MEF funds	10,074,065
Banca Intesa for prepaid card	3,536
Banca Intesa account no. 0300 004	2,782,211
TOTAL	**21,706,021**

In 2024, the Foundation opened a new treasury account - no. 0300004 - closing its previous Banca Intesa account no. 162106, in order to be able to operate under the SIOPE+ scheme.

This information system on the transactions of public bodies (SIOPE) is a system for the computerised recording of receipts and payments of public administrations, implemented by Article 28 of Law No. 289/2002.

Banca Intesa account no. 176258 is the account that receives the transactions related to CITT, while account 17247 was opened to receive the receipts and disbursements of non-MEF funds.

Credit cards are used to meet immediate expenses.

ACCRUED INCOME AND PREPAID EXPENSES

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
1,548,904	1,593,069	(44,165)

They measure income and expenses that are prepaid or deferred with respect to their cash and/or documented manifestation; they are independent of the date of payment or collection of the related income and expenses, which are common to two or more financial years and are apportionable over time. At 31 December 2025, there were no accrued income and prepayments relating to more than five years.

	ACCRUED INCOME	PREPAID EXPENSES	TOTAL ACCRUED INCOME AND PREPAID EXPENSES
Value at beginning of year	-	1,593,069	1,593,069
Change during the year	-	(44,165)	(44,165)
VALUE AT END OF YEAR	**-**	**1,548,904**	**1,548,904**

The item is broken down as follows:

DESCRIPTION	AMOUNT (€)
SOFTWARE LICENCES	306,399.47
IT SUPPORT AND MAINTENANCE SERVICES	656,399.88
SUBSCRIPTIONS TO PUBLICATIONS, NEWSPAPERS AND MAGAZINES	394,306.16
SUBSCRIPTIONS TO PUBLICATIONS, NEWSPAPERS AND MAGAZINES	742.21
OTHER RESEARCH SUPPORT SERVICES	1,672.26
ADMINISTRATIVE SUPPORT SERVICES	37,184.12
SCIENCE AND ELECTRONIC LIBRARY	39,885.27
PUBLICATION OF ADVERTISEMENTS AND STAFF RECRUITMENT	112,314.75
TOTAL PREPAYMENTS	**1,548.904**

PART B - INFORMATION ON BALANCE SHEET LIABILITIES AND EQUITY

EQUITY

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
608,305,587	541,562,132	66,743,455

Changes in equity items:

	VALUE AT BEGINNING OF YEAR	ALLOCATION OF PROFIT OF THE PREVIOUS FINANCIAL YEAR		OTHER CHANGES			PROFIT/ (LOSS) FOR THE YEAR	VALUE AT END OF YEAR
		ALLOCATION OF DIVIDENDS	OTHER ALLOCATIONS	INCREASES	DECREASES	RECLASSIFICATIONS		
Endowment Funds and Reserves	77,261,869	-	-	-	-	-	-	77,261,869
HT Management Fund	231,802,262	-	-	63,135,000	(49,542,495)	-	-	245,394,766
NF Management Fund	219,593,481	-	-	77,165,000	(25,542,626)	-	-	271,215,855
CITT Management Fund	12,770,719	-	-	2,000,000	(477,395)	-	-	14,293,324
Economic surplus (deficit) from the previous year	98,463	-	35,339	-	-	-	-	133,802
Economic surplus (deficit) for the year	35,339	-	(35,339)	-	-	-	5,971	5,971
TOTAL EQUITY	**541,562,132**	**-**	**-**	**142,300,000**	**(75,562,516)**	**-**	**5,971**	**608,305,587**

As established by Article 1, paragraph 119 of Law No. 232 of 11 December 2016, the Human Technopole Foundation's assets are made up of grants from the founding Ministries and increased by further grants from the State, as well as resources from public and private entities.
The Endowment Fund is constituted by the restricted fund for the start-up of the HT science project, provided for by art. 5 of Law Decree no. 185 of 25 November 2015, converted, with amendments, into Law no. 9 of 22 January 2016, and initially allocated to the Fondazione Istituto Italiano di Tecnologia (IIT) for an original amount of €79,900,000 and transferred net of the charges incurred for the project by IIT, in the form of both financial resources and assets in kind, to the Human Technopole Foundation, for an amount of €77,261,869.
As dictated by Article 6, paragraph four, of the Human Technopole Foundation's Articles of Association and Article 3 of the Regulation governing the Human Technopole Foundation, contained in the Prime Ministerial Decree of 27 February 2018, the aforesaid Endowment Fund is not available and is restricted to the pursuit of the statutory purposes. The Management Fund, as of the closing date of the 2024 financial year, was recorded among the Human Technopole Foundation's equity items for a total amount of €530,903,946 and includes the grants indicated in Article 1, paragraph 121 of Law no. 232 of 11 December 2016, relating to the years 2018, 2019, 2020, 2021, 2022, 2023 and 2024, for the portion not used at the closing date of the financial year.

This fund consists of three different items:
- HT Management Fund amounting to €245,394,766;
- NF Management Fund amounting to €271,215,855;
- CITT Management Fund amounting to €14,293,324.

The following table shows the changes in the Management Fund divided between the HT share and the National Facilities share in relation to the data recorded over the years, for a total of €564,977,073. Data are shown on the basis of the financial expenditure for the period and not on the basis of the cost for the year.

PERIOD	GRANTS PURSUANT TO LAW 232/2016	GRANTS USED							GRANTS TO BE USED	OF WHICH	
		2018	2019	2020	2021	2022	2023	2024		HT	NFs
2017	10,000,000	137,790	4,372,803	5,489,407	-	-	-	-	-	-	-
2018	114,300,000	-	-	86,929,620	25,981,789	-	-	-	1,388,591	1,388,591	-
2019	136,500,000	-	-	-	-	-	-	-	136,500,000	136,500,000	-
2020	112,100,000	-	-	-	22,760,586	-	-	-	89,339,414	89,339,414	-
2021	122,100,000	-	-	-	51,233,642	-	-	-	70,866,358	3,831,337	67,035,021
2022	133,600,000	-	-	-	-	59,979,966	-	-	73,620,034	-	73,620,034
2023	140,300,000	-	-	-	-	-	58,703,504	-	81,596,496	5,032,947	76,563,549
2024	140,300,000	-	-	-	-	-	-	28,633,819*	111,666,181	36,121,574	75,544,607
TOTAL	**909,200,000**	**137,790**	**4,372,803**	**92,419,027**	**99,976,017**	**59,979,966**	**58,703,504**	**28,633,819**	**564,977,073**	**272,213,863**	**292,763,211**

The following table shows the changes in the CITT Management Fund:

PERIOD	GRANTS PURSUANT TO ART. 49-BIS LAW DECREE 34/2020, CONVERTED INTO LAW NO. 77/2020)	GRANTS USED							GRANTS TO BE USED
		2018	2019	2020	2021	2022	2023	2024	
2020	10,000,000	-	-	90,775	422,857	254,939	460,711	477,395	8,293,324
2021	2,000,000	-	-	-	-	-	(2,000,000)	-	-
2022	2,000,000	-	-	-	-	-	-	-	2,000,000
2023	2,000,000	-	-	-	-	-	-	-	2,000,000
2024	2,000,000	-	-	-	-	-	-	-	2,000,000
TOTAL	**18,000,000**	**-**	**-**	**90,775**	**422,857**	**254,939**	**(1,539,289)**	**477,395**	**14,293,324**

It should be noted, as highlighted in the introductory section of these Notes to the Financial Statements, that the 'CITT Management Fund' derives from the grant pursuant to Article 49-bis of Law Decree no. 34 of 19 May 2020, converted with amendments by Law no. 77 of 17 July 2020, which provided for the establishment of the structure called 'Centre for Innovation and Technology Transfer in the Life Science field', specifying that the Human Technopole Foundation must adopt specific organisational measures and dedicated management solutions, with the adoption of separate accounting for the use of the resources allocated for this purpose.

* the figure relating to the 2024 utilisation, amounting to €28,633,819, refers to the report submitted to the MEF for the period 01.01.2024_30.06.2024

PROVISIONS FOR RISKS AND CHARGES

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
664,854	316,854	348,000

The class Provisions for risks and charges includes the item 'Other Provisions' with a balance of €23,854 relating to provisions for 'Technical incentives and employee training' to which the item 'Provisions for risks' is added for an amount of €641,000 relating to provisions referring to disputes on procurement procedures for goods and services and terminated employees.

SEVERANCE PAY

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
2,110,584	1,495,397	615,187

SEVERANCE PAY	
Value at beginning of year	1,495,397
Pension fund withholdings	(81,286)
Severance pay revaluation	32,786
Accrual of the year	797,326
Use during the year	(121,631)
Other changes	(12,009)
Value at end of year	2,110,584

This provision represents the actual amount owed by the company, at 31 December 2024, to employees in force at said date.

PAYABLES

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
25,613,091	21,542,069	4,071,022

CHANGES AND DUE DATE OF PAYABLES

The maturity of payables is broken down as follows:

	VALUE AT BEGINNING OF YEAR	CHANGE DURING THE YEAR	VALUE AT END OF YEAR	PORTION DUE WITHIN ONE YEAR	PORTION DUE AFTER ONE YEAR	OF WHICH WITH A REMAINING DURATION BEYOND 5 YEARS
Payables to banks	-	-	-	-	-	-
Trade payables	16,227,267	2,384,184	18,611,451	18,611,451	-	-
Tax payables	1,985,037	994,462	2,979,499	2,979,499	-	-
Payables to social security institutions	1,397,895	301,487	1,699,382	1,699,382	-	-
Other payables	1,931,870	390,889	2,322,759	2,322,759	-	-
TOTAL DEBTS	**21,542,069**	**4,071,022**	**25,613,091**	**25,613,091**	**-**	**-**

"Trade payables" are recorded at nominal value and this item includes not only the value of payables for registered invoices, but also the amount of invoices to be received for services pertaining to the financial year relating to invoices to be received.

Total 'Trade payables' as at 31/12/2024 are broken down as follows:

DESCRIPTION	AMOUNT (€)
Suppliers of goods and services	9,739,990
Invoices to be received	8,871,461
TOTAL	**18,611,451**

The increase in the item 'trade payables', compared to the previous year, is in line with the increase in costs for the year. This increase is physiological as it follows the increase in research developed by the Foundation.

Debt payment, as in the previous year, respects the 30-day deadline as stipulated by the Human Technopole Foundation's registration as a public body in the ISTAT list.

The item 'Tax payables' only includes liabilities for certain and definite taxes and is broken down as follows:

DESCRIPTION	AMOUNT (€)
IRAP payable	-
IRES payable	-
Payables to tax authorities for withholdings on employee income	369,085
Payables to treasury for withholding taxes on self-employed income	44,210
Other tax payables	2,566,205
TOTAL	**2,979,499**

Tax payables do not include IRES and IRAP tax liabilities, as can be seen in the paragraph on 'Tax receivables'.

'Other tax payables' include, for the most part, the VAT payable for December, which will be settled via F24 in January 2025 (€2,410,014).

"Payables to social security institutions" include the amount of social security charges for employees and contractors, accrued and unpaid as at 31 December 2024. Below are the details:

DESCRIPTION	AMOUNT (€)
Payables to INPS	1,473,736
Payables to INAIL	12,884
Payables to PREVINDAI for employees	75,934
Payables to FONCHIM for employees	89,181
Payables to FASCHIM for employees	37,792
Payables to other pension institutions	9,854
PAYABLES TO PENSION AND SOCIAL SECURITY INSTITUTIONS	**1,699,382**

'Other payables' and 'Other payables for internal recharges' amounting to a total of €2,322,759, include residual payables, which by their nature do not fall under the previous items, including payables to Human Technopole Foundation employees. In particular, the amount of payables related to leave accrued by employees but not taken was €1,340,910. It should be noted that the increase in the balance for 2024 is due to the increase in recruitment during the year.

BREAKDOWN OF PAYABLES BY GEOGRAPHIC AREA

The breakdown of payables by geographical area as at 31 December 2024 is shown in the table below:

GEOGRAPHICAL AREA	BONDS	CONVERTIBLE BONDS	PAYABLES FOR SHAREHOLDER LOANS	PAYABLES TO BANKS	PAYABLES DUE TO OTHER LENDERS	ADVANCES	TRADE PAYABLES	PAYABLES REPRESENTED BY CREDIT INSTRUMENTS
Italy	-	-	-	-	-	-	17,632,452	-
UE	-	-	-	-	-	-	318,513	-
Non-EU	-	-	-	-	-	-	660,485	-
TOTAL	**-**	**-**	**-**	**-**	**-**	**-**	**18,611,451**	**-**

GEOGRAPHICAL AREA	PAYABLES TO SUBSIDIARIES	PAYABLES TO ASSOCIATES	PAYABLES TO PARENTS	PAYABLES TO SUBSIDIARIES OF PARENTS	TAX PAYABLES	PAYABLES TO PENSION AND SOCIAL SECURITY INSTITUTIONS	OTHER PAYABLES	PAYABLES
Italy	-	-	-	-	2,979,499	1,699,382	2,322,759	7,001,640
TOTAL	**-**	**-**	**-**	**-**	**2,979,499**	**1,699,382**	**2,322,759**	**7,001,640**

ACCRUED EXPENSES AND DEFERRED INCOME

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
141,430,571	139,007,012	2,423,558

	ACCRUED EXPENSES	DEFERRED INCOME	TOTAL ACCRUED EXPENSES AND DEFERRED INCOME
Value at beginning of year	-	139,007,012	139,007,012
Change during the year	-	2,423,558	2,423,558
VALUE AT END OF YEAR	**-**	**141,430,571**	**141,430,571**

The item is broken down as follows:

DESCRIPTION	AMOUNT (€)
Deferred income	10,268,112
Deferred income for equipment grants	131,162,458
Deferred income - others	-
TOTAL	**141,430,571**

The criteria adopted in the valuation and conversion of values expressed in foreign currencies for these items are set out in the first part of these Notes to the Financial Statements.
The portion of the capital grant (treated as advance revenue to be deferred) referring substantially to depreciable capital goods acquired during the year amounting to €131,162,459 was recognised in deferred income, in accordance with the indirect method disciplined by OIC 16.

In addition, the item includes deferrals referring to grants and specific projects for a total of €10,268,112.

PART C - INFORMATION ON THE PROFIT AND LOSS ACCOUNT

VALUE OF PRODUCTION

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
79,790,539	66,609,077	13,181,463

DESCRIPTION	31/12/2024	31/12/2023	CHANGES (€)
Turnover from sales and services	-	-	-
Other revenues and income	79,790,539	66,609,077	13,181,463
TOTAL	**79,790,539**	**66,609,077**	**13,181,463**

The item "Other revenues and income" is broken down as follows:

- operating grant - HT: under art. 1, paragraph 121 of Law no. 232/2016: amounting to €31,604,544, relating to the portion of the operating grant, correlated in terms of accrual of the specific activities of the Human Technopole Foundation on account of the charges incurred (as provided for by accounting principle no. 1 for non-profit entities);
- operating grant - CITT: under art. 49-bis Law Decree 34/2020, converted with amendments by Law No. 77/2020: amounting to €477,395, relating to the portion of the operating grant related to the financing of the 'Centre for Innovation and Technology Transfer in Life Sciences';
- grant - National Facilities: amounting to €22,697,487 relating to the share of the operating grant;
- capital grant - HT: amounting to €16,539,355 relates to the capital grant pertaining to the year, calculated on the basis of the depreciation charged to the profit and loss account and determined on the basis of the useful life of the assets acquired during the year and in previous years. The accounting of this grant derives from the application of the income method, according to which the amount of the grant, recognised in the Profit and Loss Account under other revenues and income, is deferred to subsequent years on an accrual basis through the recognition of deferred income, with depreciation calculated on the gross cost of the assets equal to the grant portion for the year being recognised in the Profit and Loss Account;
- grant - National Facilities: amounting to €4,517,514, relating to the share of capital contribution of investments in assets used for HT- and NF-related activities and in assets used solely in connection with NFs, related on an accrual basis to the portion of the activity attributed to the National Facilities, on the basis of the costs incurred (as set forth in accounting principle no. 1 for non-profit entities);
- operating Grant - Other Entities: amounting to €3,660,982, relating to the portion of operating grant paid by entities other than the MEF in connection with the management of specific scientific research projects;
- miscellaneous revenues and income: amounting to €293,263, they refer mainly to revenues from the commercial activity carried out by the Human Technopole Foundation, which took the form of renting certain spaces in Palazzo Italia, as well as the shares of revenues from the scientific project financed by the Sanger Institute relating to commercial funds for the courses held by the Foundation.

COSTS OF PRODUCTION

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
79,288,929	65,878,262	13,410,667

DESCRIPTION	31/12/2024	31/12/2023	CHANGES (€)
Raw and ancillary materials and goods	11,721,950	10,179,848	1,542,101
Services	21,517,860	16,003,219	5,514,642
Use of third party assets	785,322	951,078	(165,756)
Wages and salaries	17,637,053	15,322,839	2,314,213
Social security contributions	5,070,703	4,401,184	669,518
Severance pay	1,192,966	1,028,831	164,134
Retirement benefits and similar	178,467	172,691	5,776
Other costs	540,253	427,791	112,463
Amortization of intangible assets	84,007	63,381	20,626
Depreciation of tangible assets	19,098,490	15,789,695	3,308,795
Other write-downs of fixed assets	-	-	-
Changes in inventories of raw, ancillary and consumable materials and goods	24,485	24,080	405
Provisions for risks	335,819	315,553	20,266
Other provisions	14,434	-	14,434
Sundry operating expenses	1,087,121	1,198,071	(110,950)
TOTAL	**79,288,929**	**65,878,262**	**13,410,667**

COSTS FOR RAW MATERIALS, CONSUMABLES AND GOODS

They concern the costs incurred for the procurement of consumables and are mainly related to the activities of the research centres. Specifically, they amounted to €11,721,950 in 2024, showing an increase of €1.5 million compared to 2023.

EXPENSES FOR SERVICES

With particular reference to costs for services, the amount of €21,517,860 consists of the following items:

EXPENSES FOR SERVICES	AS AT 31.12.2024
EURO	AMOUNT (€)
Technical, administrative and legal advice	1,622,248
Software support and maintenance services	4,272,367
Insurance	359,194
Employee remuneration	793,222
Bodies and Committees Fees	1,189,116
Maintenance and repairs	3,911,016
Other research support services	2,285,071
Training	381,373
Communication and publications	921,115
PhD Students Costs	1,831,159
Other service costs	3,500,833
Selection and Publication Services	451,147
TOTAL	**21,517,860**

The most significant items in 'Expenses for services' are shown below.

The item 'technical, administrative and legal advice' includes expenses related to administrative and staff support services (approx. €791 thousand), engineering and design services (approx. €467 thousand), legal services (approx. €257 thousand), and occupational safety (approx. €79 thousand).
'Software support and maintenance services' concern costs incurred for the purchase of licences amounting to approximately €1.5 million and for software and equipment support and maintenance amounting to €2.7 million.

Fees for Bodies and Committees include fees for the Supervisory Body, Management Committee, Scientific Committee, Supervisory Body, Board of Auditors amounting to approximately €793 thousand plus social security charges.

The item 'maintenance and repairs' mainly includes costs related to building maintenance for about €2.3 million and maintenance of scientific instruments for about €1.4 million.

The item 'other research support services' mainly includes costs incurred for external sample processing services using latest-generation 'affinity-based' proteomics (€1.2 million), proteomic data generation services (€174 thousand), sequencing services (€141 thousand), animal facility services and services concerning the keeping of laboratory guinea pigs (€100 thousand).

The costs incurred for training refer to compulsory and optional courses.

'Communications and publications' expenses refer to the purchase of scientific and electronic books in the amount of €609 thousand, costs for press reviews in the amount of €128 thousand, costs for scientific publications in the amount of €126 thousand

and for subscriptions to publications, newspapers and magazines in the amount of €21 thousand.

PHD costs refer to costs related to scholarships provided by the Human Technopole Foundation. The item 'other service costs' mainly includes costs incurred for missions (approx. €850 thousand), catering services (approx. €544 thousand), campus building security and control services (approx. €409 thousand), gas and water consumption (approx. €300 thousand), membership fees (approx. €266 thousand), meeting organisation expenses (approx. €206 thousand), and guesthouse services (approx. €101 thousand).

Costs related to the selection of employees are reclassified in the selection and publication services.

PERSONNEL COSTS

This item includes all employee expenses, including merit improvements, category upgrades, contingency payments, the cost of untaken holidays and provisions required by law and collective agreements.

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
24,619,441	21,353,337	3,266,104

The change reflects the increase in the number of employees hired during the year.

DEPRECIATION/AMORTISATION OF TANGIBLE ASSETS / INTANGIBLE ASSETS

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
19,182,497	15,853,076	3,329,421

Amortisation/Depreciation has been calculated on the basis of the useful life of the asset and its operation during the production phase.

The balance as at 31/12/2024 is mainly composed of the following amortisation/depreciation items:

- amortisation of concessions, licences, trademarks and similar rights amounting to €65,018;
- amortisation of patent rights amounting to €647;
- amortisation of other intangible assets amounting to €18,341;
- depreciation of buildings amounting to €2,211,934;
- depreciation of plant and machinery amounting to €387,705;
- depreciation of laboratory equipment amounting to €11,697,691;
- depreciation of other assets amounting to €4,801,161.

PROVISION FOR RISKS AND CHARGES

This item includes provisions made in connection with contingent but uncertain liabilities.

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
335,819	315,553	20,266

The change is due to several adjustments to the provision mainly in connection with disputes with suppliers and former employees.

OTHER PROVISIONS

This item includes provisions made in connection with technical incentives and training incentives to employees.

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
14,434	-	14,434

SUNDRY OPERATING EXPENSES

The item Sundry operating expenses mainly includes costs incurred in the amount of €923 thousand related to the ECF programme, Early Career Fellowship, through which research projects in the fields of genomics, biology and health data science are supported. The Human Technopole Foundation funded 7 young researchers in 2022 and 2023. Each year, researchers are awarded a scholarship worth up to €200,000. In addition, this item includes costs incurred in connection with the purchase and payment of revenue stamps and the incurrence of taxes and duties such as IMU and TARI.

Below are the changes in the item:

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
1,087,121	1,198,071	(110,950)

FINANCIAL INCOME AND CHARGES

Financial income and charges include realised foreign exchange gains and/or losses.

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
2,039	1,391	648

DESCRIPTION	31/12/2024	31/12/2023	CHANGES (€)
Income other than above	-	-	-
(Interest and other financial charges)	-	-	-
Exchange rate gains (losses)	2,039	1,391	648
Total	**2,039**	**1,391**	**648**

INCOME TAXES, CURRENT AND DEFERRED

BALANCE AT 31/12/2024	BALANCE AT 31/12/2023	CHANGES (€)
493,601	694,085	(200,484)

DESCRIPTION	31/12/2024	31/12/2023	CHANGES (€)
CURRENT TAXES	**493,601**	**694,085**	**(200,484)**
IRES	161,554	243,950	(82,396)
IRAP	332,047	450,135	(118,088)
DEFERRED (PREPAID) TAXES	**-**	**-**	**-**
IRES	-	-	-
IRAP	-	-	-
TOTAL	**493,601**	**694,085**	**(200,484)**

Pursuant to Article 2427, paragraph 1, no. 14, of the Italian Civil Code, it should be noted that there are no temporary differences recognisable for deferred taxation purposes.

DETERMINATION OF IRES

INSTITUTIONAL ACTIVITY	FINANCIAL YEAR 31/12/2024	FINANCIAL YEAR 31/12/2023
Income from buildings	317,657	317,657
IRES rate	24%	24%
IRES INSTITUTIONAL ACTIVITY	**76,238**	**76,238**

COMMERCIAL ACTIVITY	FINANCIAL YEAR 31/12/2024	FINANCIAL YEAR 31/12/2023
A) Value of production	460,695	717,304
5) Other revenues and income	460,695	717,304
B) Costs of production	(105,210)	(18,503)
Specific costs	(99,988)	-
Miscellaneous costs	(3,377)	(15,046)
Share of cadastral income	(1,845)	(3,457)
Upward changes	-	-
Business income	355,485	698,801
IRES rate	24%	24%
IRES COMMERCIAL ACTIVITY	**85,316**	**167,712**

IRES TOTAL	FINANCIAL YEAR 31/12/2024	FINANCIAL YEAR 31/12/2023
IRES Institutional Activity	76,238	76,238
IRES Commercial Activity	85,316	167,712
IRES FOR THE YEAR	**161,554**	**243,950**

DETERMINATION OF IRAP

INSTITUTIONAL ACTIVITY	FINANCIAL YEAR 31/12/2024	FINANCIAL YEAR 31/12/2023
Personnel and staff costs		
- Gross taxable income	19,210,848	16,567,416
- Deductions	(11,045,787)	(5,728,545)
Net taxable income	8,165,061	10,838,871
IRAP rate	3,90%	3,90%
IRAP INSTITUTIONAL ACTIVITY	**318,437**	**422,716**

COMMERCIAL ACTIVITY	FINANCIAL YEAR 31/12/2024	FINANCIAL YEAR 31/12/2023
A) Value of production	460,695	717,304
B) Costs of production	(86,101)	(14,249)
Specific costs	(75,027)	-
Miscellaneous costs	(11,074)	(14,249)
IRAP recoveries	(25,644)	-
Taxable IRAP	348,950	703,055
IRAP rate	3,90%	3,90%
IRAP COMMERCIAL ACTIVITY	**13,609**	**27,419**

IRAP TOTAL	FINANCIAL YEAR 31/12/2024	FINANCIAL YEAR 31/12/2023
IRAP Institutional Activity	318,437	422,716
IRAP Commercial Activity	13,609	27,419
IRAP FOR THE YEAR	**332,046**	**450,135**

IRAP has been determined on the basis of the provisions concerning non-business entities, while IRES has been calculated considering that the real estate owned by the Human Technopole Foundation contributes to the formation of income on the basis of the cadastral results, without deduction of expenses or other specific negative components.

PART D - OTHER INFORMATION

Introduction, other information in Notes to the Financial Statements

WORKFORCE

Reference is made in full to what has already been outlined in the Management Report.

The composition of the workforce as at 31/12/2024 is shown below; staff members were included in the Human Technopole Foundation's workforce through recruitment advertisements published on the Human Technopole Foundation website and on major international recruiting sites (LinkedIn, Springer Nature, Eurojobsites).

The average company workforce, broken down by category, changed as follows compared to the previous year.

STAFF	31/12/2024	31/12/2023	CHANGES
Senior managers	43	37	6
Middle managers	63	61	2
Office workers	231	179	52
Blue-collar employees	-	-	-
Others (apprentices)	3	3	-
TOTAL	**340**	**280**	**60**

In the management of labour relations, reference was made to two National Collective Labour Agreements (hereinafter referred to as CCNLs) for pay and regulatory aspects:

(i) for employees with executive status, to the CCNL INDUSTRY EXECUTIVES;
(ii) for other qualifications, to the INDUSTRIAL CHEMICAL FACTORIES CCNL.

	SENIOR MANAGERS	MIDDLE MANAGERS	OFFICE WORKERS	OTHER EMPLOYEES	TOTAL EMPLOYEES
Average number 2024	41	60	202	3	**306**

FEES, ADVANCES AND LOANS TO DIRECTORS AND STATUTORY AUDITORS AND COMMITMENTS UNDERTAKEN ON THEIR BEHALF

	SUPERVISORY BOARD	MANAGEMENT COMMITTEE	BOARD OF AUDITORS
Fees	423,153.25	109,032.25	40,064.64
Advances	-	-	-
Receivables	-	-	-
Commitments undertaken on their behalf for guarantees issued	-	-	-

COMMITMENTS, GUARANTEES AND POTENTIAL LIABILITIES NOT REPORTED ON THE BALANCE SHEET

As at 31.12.2024, commitments related to open orders amounted to €51,010,636 and commitments related to pending purchase procedures amounted to €10,554,899, for an overall total of €71,565,515. Below are the details:

VALUE OF OPEN ORDERS AS AT 31.12.2024 VAT included	
TOTAL CAPEX	15,659,113.69
TOTAL OPEX + PHD	35,351,522.17
GRAND TOTAL	**51,010,635.86**
of which	
LABORATORY FURNITURE	14,386.02
SCIENTIFIC EQUIPMENT	678,031.62
SPECIFIC DATA CENTRE AND INFORMATION TECHNOLOGY EQUIPMENT	960,037.02
IMPROVEMENTS TO EXISTING CAMPUSES AND BUILDINGS	10,605,677.06
SOUTH BUILDING	3,400,981.97
MOLISANI PROJECT	999,180.00
TROINA PROJECT	-
RTI ALMAVIVA	-
MAINTENANCE SCIENTIFIC EQUIPMENT	2,599,235.85
EARLY CAREER FELLOWS PROGRAMME	4,089,722.61
PHD STUDENTS SCHOLARSHIP	4,718,536.15
EXISTING CAMPUS FACILITIES AND BUILDINGS	8,965,792.36
DATA CENTRE AND INFORMATION TECHNOLOGY SPECIFIC SERVICES	5,706,436.76
SCIENCE LIBRARY	98,268.57
TECHNICAL ASSISTANCE AND NON-SCIENTIFIC PROFESSIONAL SERVICES	5,818,074.52
MATERIALS AND SERVICES OF A SCIENTIFIC NATURE	2,356,275.35

VALUE OF CAPEX PROCEDURES IN PROGRESS AS AT 31.12.24 VAT included	
TOTAL CAPEX	**20,554,878.73**
of which	
SMALL LABORATORY EQUIPMENT AND FURNISHINGS	70,834.42
NATIONAL PLATFORMS EQUIPMENT	11,907,225.75
DATA CENTRE - EQUIPMENT UPGRADE	3,772,000.00
IMPROVEMENTS TO EXISTING CAMPUSES AND BUILDINGS	4,506,974.19
PROVISION OF ADDITIONAL SHELTERS	297,844.37
SOUTH BUILDING	-

It should be noted that the guarantee given for a total amount of €540,000 in favour of Enel has been released.

CARRY OVER 2024

On 1 January 2025, the system of the 'carry over' of funds was introduced, whereby certain funds linked to Board-approved activities and not used by 31.12.2024 are used in the following year, although they still have to be stated in the previous year.
In addition to the carry-over portion, amounting to €8 million, referring to purchases of scientific equipment, Data Centres and Campus, already approved on 19.12.2024 by the Board at the same time as the approval of the Budget, with the approval of the Financial Statements the residual Opex/Facility Services related to the RGLs resulting as at 31.12.2024 and amounting to Euro 5.9 ML were also made available.

Below are the details:

CARRY-OVER 2024	EURO
TOTAL	**5,906,980**
POPULATION AND MEDICAL GENOMICS	**877,562**
SORANZO GROUP	411,424
SOSKIC GROUP	192,950
GLASTONBURY GROUP	66,807
CONDE GROUP	107,024
GIUSTACCHINI GROUP	99,357
FUNCTIONAL GENOMICS	**615,253**
CARNINCI GROUP	444,796
BIENKO GROUP	72,822
CALVIELLO GROUP	54,932
LEGNINI GROUP	42,703
NEUROGENOMICS	**521,931**
TESTA GROUP	64,971
KALEBIC GROUP	15,641
HARSCHNITZ GROUP	48,143
DAVILA GROUP	257,786
TAVERNA GROUP	135,390
COMPUTATIONAL BIOLOGY	**904,147**
SOTTORIVA GROUP	12,197
IORIO GROUP	41,879
JUG GROUP	347,098
PINHEIRO GROUP	60,316
DATA GENERATION EXPERIMENTAL VALIDATION	442,658

CARRY-OVER 2024	EURO
STRUCTURAL BIOLOGY	**1,552,738**
VANNINI GROUP	317,402
PIGINO GROUP	618,998
ERDMANN GROUP	335,509
CASANAL GROUP	190,818
COSCIA GROUP	90,011
HEALTH DATA SCIENCE	**1,340,809**
DI ANGELANTONIO GROUP	1,300,630
ZUCCOLO GROUP	40,179
MOLECULAR CELL BIOLOGY	**94,539**
ZERIAL GROUP	94,539

RELATED PARTY TRANSACTIONS

The entity has not entered into any transactions with related parties.

INFORMATION ON AGREEMENTS NOT DISCLOSED IN THE BALANCE SHEET

Reference is made to what has already been pointed out in the Management Report and to what has been described under commitments not reported in the Balance Sheet above.

EVENTS AFTER THE REPORTING DATE

It should be noted that with the approval of Budget Law 2025 (no. 207/2024), the annual grants to Human Technopole and CITT were reduced for the 2025-2027 three-year period: Specifically, the annual grants will be reduced from 140.3 million to 126.3 and from 2 million to 1 million, respectively.

INFORMATION ON FINANCIAL DERIVATIVES UNDER ART. 2427-BIS OF THE ITALIAN CIVIL CODE

The Human Technopole Foundation does not hold derivative financial instruments.

INFORMATION PURSUANT TO ART. 1, PARAGRAPH 125-BIS, OF LAW N. 124 OF 4 AUGUST 2017

Pursuant to Article 1, paragraph 125 of Law No. 124 of 4 August 2017, in compliance with the transparency obligation, we report that grants were received from the Ministry of Economy and Finance during the financial year in the following amounts:

- €12,335,217.78 as residual grants for the years 2019 and 2021;
- €82,999,221.15 as the share of grants for the year 2022;
- €140,300,000 as grants for the year 2024.

Finally, it should be noted that the Human Technopole Foundation has accrued operating grants, not yet materially received, in the amount of €48,392,787.68, relating to the years 2018 and 2020.

OTHER INFORMATION

The table below summarises the Profit and Loss Account for the Human Technopole Foundation's business activities.

HT PROFIT AND LOSS ACCOUNT

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
A) VALUE OF PRODUCTION	**103,717**	**97,133**
1) Turnover from sales and services	**-**	**-**
2) Changes in inventories of work in progress, semi-finished and finished products	**-**	**-**
3) Changes in contract work in progress	**-**	**-**
4) Increases in fixed assets for internal work	**-**	**-**
5) Other revenue and income:	**103,717**	**97,133**
a) Various	85,197	97,133
b) HT grants:	-	-
- of which HT Operating grants	-	-
- of which HT Capital grants	-	-
c) CITT grants	-	-
- of which CITT Capital grants	-	-
- of which CITT Operating grants	-	-
d) National Facilities grants	-	-
e) other entities grants	18,520	-
- of which other entities capital grants	-	-
- of which other entities operating grants	18,520	-
B) COSTS OF PRODUCTION	**453,450**	**620,171**
6) Purchases of raw materials, consumables and goods	**3,567**	**(112)**
7) Expenses for services	**115,226**	**259,439**
8) Costs for use of third party assets	**3,326**	**-**
9) Personnel expenses	**28,561**	**73,197**
a) Wages, salaries	20,960	55,613
b) Social security contributions	5,488	13,625
c) Severance pay	1,200	2,964
d) Pensions and similar costs	-	-
e) Other costs	913	995
10) Amortisation, depreciation and write-downs	**290,722**	**276,219**
a) Amortisation of intangible assets	-	-
b) Depreciation of tangible assets	290,722	276,219

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
c) Other write-downs of fixed assets	-	-
d) Write-downs of current receivables and cash and cash equivalents	-	-
11) Changes in inventories of raw, ancillary and consumable materials and goods	**-**	**-**
12) Provision for risks	**-**	**-**
13) Other provisions	**-**	**-**
14) Other operating costs	**12,048**	**11,429**
Difference between value and costs of production	**(349,733)**	**(523,037)**
C) FINANCIAL INCOME AND EXPENSES	**1,066**	**-**
17) Interest and other financial charges:	**-**	**-**
17 bis) Foreign exchange gains and losses	**1,066**	**-**
D) VALUE ADJUSTMENTS TO FINANCIAL ASSETS AND LIABILITIES	**-**	**-**
Pre-tax profit	**(350,799)**	**(523,037)**
20) Income taxes for the year	**98,925**	**195,131**
a) Current taxes	98,925	195,131
b) Deferred tax liabilities	-	-
c) Deferred tax assets	-	-
d) Income (expenses) from joining the tax consolidation/tax transparency scheme	-	-
21) Profit/(Loss) for the year	**(449,724)**	**(718,169)**

Paragraph 3 Article 49-bis of Decree-Law No. 34 of 19 May 2020, converted with amendments by Law No. 77 of 17 July 2020, in relation to the development of the 'Centre for Innovation and Technology Transfer in the Life Sciences', specifies: "The Human Technopole Foundation shall adopt specific organisational measures and dedicated management solutions, with the adoption of separate accounts relating to the use of the resources allocated for this purpose."

The table below summarises the Profit and Loss Account for CITT:

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
A) VALUE OF PRODUCTION	**477,402**	**460,721**
1) Turnover from sales and services	**-**	**-**
2) Changes in inventories of work in progress, semi-finished and finished products	**-**	**-**
3) Changes in contract work in progress	**-**	**-**
4) Increases in fixed assets for internal work	**-**	**-**
5) Other revenue and income:	**477,402**	**460,721**
a) Various	7	10
b) HT grants:	-	-
- of which HT Operating grants	-	-
- of which HT Capital grants	-	-
c) CITT grants	477,395	460,711
- of which CITT Capital grants	-	-
- of which CITT Operating grants	477,395	460,711
d) National Facilities grants	-	-
e) other entities grants	-	-
- of which other entities capital grants	-	-
- of which other entities operating grants	-	-
B) COSTS OF PRODUCTION	**477,402**	**460,721**
6) Purchases of raw materials, consumables and goods	**-**	**2,196**
7) Expenses for services	**329,040**	**226,893**
8) Costs for use of third party assets	**-**	**179**
9) Personnel expenses	**148,287**	**231,196**
a) Wages, salaries	109,049	195,994
b) Social security contributions	27,692	25,298
c) Severance pay	7,688	6,258

PROFIT AND LOSS ACCOUNT (VALUES IN EURO)	31/12/2024	31/12/2023
d) Pensions and similar costs	858	957
e) Other costs	3,000	2,689
10) Amortisation, depreciation and write-downs	**-**	**-**
a) Amortisation of intangible assets	-	-
b) Depreciation of tangible assets	-	-
c) Other write-downs of fixed assets	-	-
d) Write-downs of current receivables and cash and cash equivalents	-	-
11) Changes in inventories of raw, ancillary and consumable materials and goods	**-**	**-**
12) Provision for risks	**-**	**-**
13) Other provisions	**-**	**-**
14) Other operating costs	**75**	**257**
Difference between value and costs of production	**-**	**-**
C) FINANCIAL INCOME AND EXPENSES	**-**	**-**
17) Interest and other financial charges:	**-**	**-**
17 bis) Foreign exchange gains and losses	**-**	**-**
D) VALUE ADJUSTMENTS TO FINANCIAL ASSETS AND LIABILITIES	**-**	**-**
Pre-tax profit	-	-
20) Income taxes for the year	**-**	**-**
a) Current taxes	-	-
b) Deferred tax liabilities	-	-
c) Deferred tax assets	-	-
d) Income (expenses) from joining the tax consolidation/tax transparency scheme	-	-
21) Profit/(Loss) for the year	**-**	**-**

These financial statements, comprising the Balance Sheet, Profit and Loss Account, Notes to the Financial Statements and Cash Flow Statement, give a true and fair view of the financial position and results of operations for the year and correspond to the accounting records.

Milan, 16 April 2025

For the MANAGEMENT COMMITTEE
Chair
Prof. Marino Zerial

Approved by the Supervisory Body on 23 April 2025

For the Supervisory Body
Chair
Prof. Gianmario Verona

Independent auditors' report on the sustainability disclosure included in the integrated report

KPMG

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(This independent auditors' report has been translated into English solely for the convenience of international readers. Accordingly, only the original Italian version is authoritative.)

Independent auditors' report on the sustainability disclosure included in the integrated report

To the management committee of
Fondazione Human Technopole

We have been engaged to perform a limited assurance engagement on the 2024 sustainability disclosure, consisting of the sections marked with the GRI symbol, (the "sustainability disclosure") presented in the integrated report of Fondazione Human Technopole (the "foundation").

Directors' responsibilities for the sustainability disclosure

The foundation's directors are responsible for the preparation of a sustainability disclosure in accordance with the "Global Reporting Initiative Sustainability Reporting Standards" issued by GRI - Global Reporting Initiative (the "GRI Standards").

They are also responsible for such internal control as they determine is necessary to enable the preparation of a sustainability disclosure that is free from material misstatement, whether due to fraud or error.

They are also responsible for defining the foundation's objectives regarding its sustainability performance and the identification of the stakeholders and the significant aspects to report.

Auditors' independence and quality management

We are independent in compliance with the independence and all other ethical requirements of the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants (the IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Our company applies International Standard on Quality Management 1 (ISQM Italia 1) and, accordingly, maintains a system of quality management including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Independent auditors' report

Our responsibility is to express a conclusion, based on the procedures performed, about the compliance of the sustainability disclosure with the requirements of the GRI Standards. We carried out our work in accordance with the criteria established by "International Standard on Assurance Engagements 3000 (revised) - Assurance Engagements other than Audits or Reviews of Historical Financial Information" ("ISAE 3000 Revised"), issued by the International Auditing and Assurance Standards Board (IAASB) applicable to limited assurance engagements. This standard requires that we plan and perform the engagement to obtain limited assurance about whether the sustainability disclosure is free from material misstatement.

A limited assurance engagement is less in scope than a reasonable assurance engagement carried out in accordance with ISAE 3000 Revised, and consequently does not enable us to obtain assurance that we would become aware of all significant matters and events that might be identified in a reasonable assurance engagement.

The procedures we performed on the sustainability disclosure are based on our professional judgement and include inquiries, primarily of the foundation's personnel responsible for the preparation of the information presented in the sustainability disclosure, documental analyses, recalculations and other evidence gathering procedures, as appropriate.

Specifically, we performed the following procedures:

1 analysing the reporting of material aspects process, specifically how the reference environment is analysed and understood, how the actual and potential impacts are identified, assessed and prioritised and how the process outcome is validated internally;

2 comparing the financial disclosures presented in the sustainability disclosure with those included in the foundation's financial statements;

3 understanding the processes underlying the generation, recording and management of the significant qualitative and quantitative information disclosed in the sustainability disclosure.

Specifically, we held interviews and discussions with the foundation's management personnel. We also performed limited procedures on documentation to gather information on the processes and procedures used to gather, combine, process and transmit non-financial data and information to the office that prepares the sustainability disclosure. Furthermore, with respect to significant information, considering the foundation's activities and characteristics:

a) we held interviews and obtained supporting documentation to check the qualitative information for consistency with available evidence;

b) we carried out analytical and limited procedures to check, on a sample basis, the correct aggregation of data in the quantitative information.

Conclusion

Based on the procedures performed, nothing has come to our attention that causes us to believe that the 2024 sustainability disclosure of Fondazione Human Technopole has not been prepared, in all material respects, in accordance with the requirements of the GRI Standards.

Fondazione Human Technopole
Independent auditors' report
31 December 2024

Other matters

Other auditors performed a limited assurance engagement on the foundation's 2023 and 2022 integrated reports, from which the comparative data included in the 2024 sustainability disclosure are derived, and expressed an unqualified conclusion thereon on 25 June 2024 and 28 June 2023, respectively.

Milan, 4 July 2025

KPMG S.p.A.

(signed on the original)

Francesco Cuzzola
Director of Audit

September 2025

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TEAM RISK MANAGEMENT
& INTEGRATED REPORT - FINANCE AREA

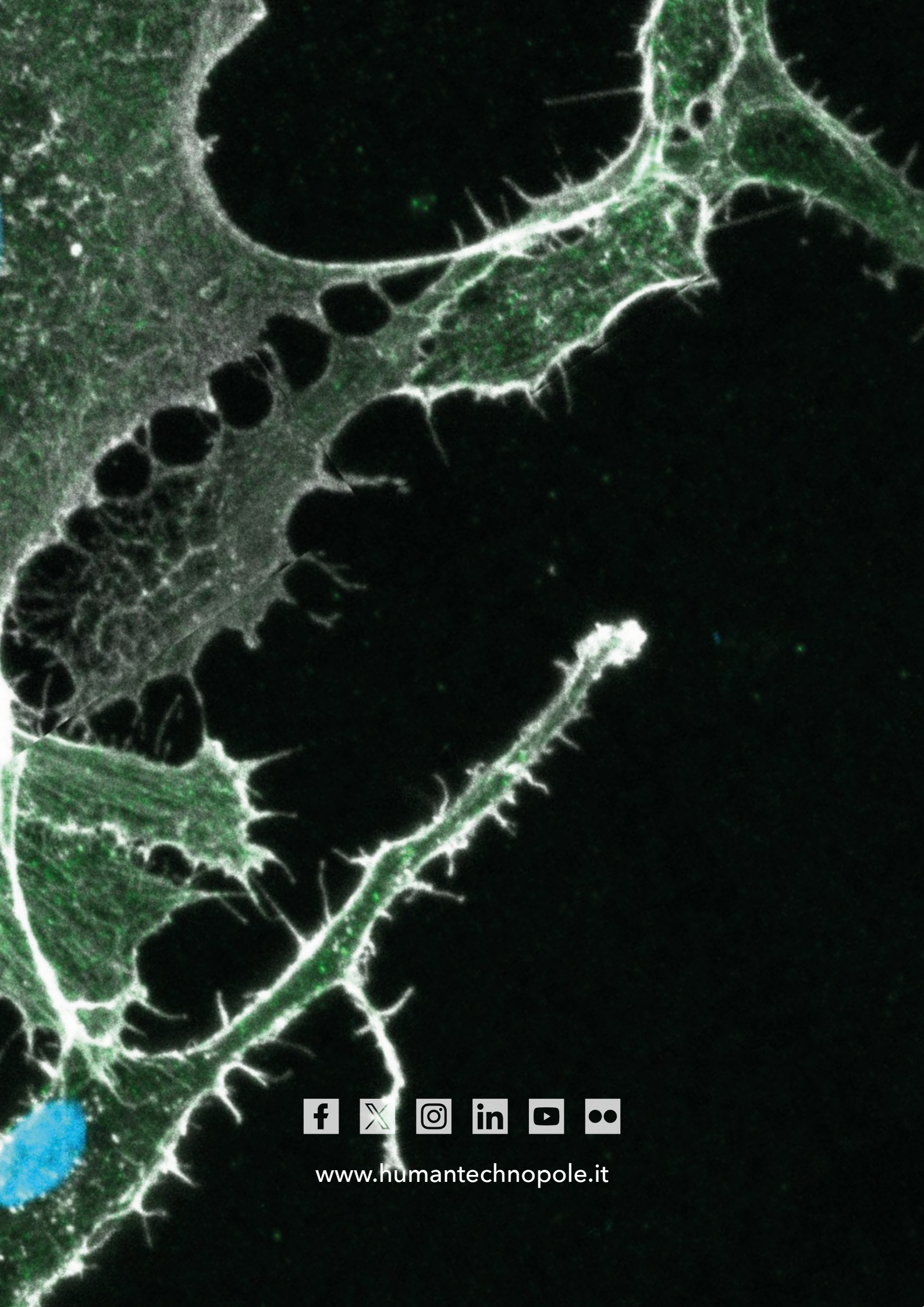
GRAPHIC DESIGN
Visualmade, Milano

IMAGES
Human Technopole Archive

COVER

Glioblastoma stem cells with complex morphologies form tumour cell networks. Cell protrusions and tumour cell connections allow glioblastoma stem cells to enhance viability and resistance to therapy. Adducing 3 (in green) is a cytoskeletal protein that mediates the growth of cell protrusions and promotes tumour cell connectivity, making glioblastoma stem cells more resistant to chemotherapy. Image taken by Carlotta Barelli, PhD student in the Kalebic Group (Neurogenomics).

For comments, requests, opinions and ideas for improvement regarding HT sustainability activities and the information contained herein, please contact the HT Finance Team by sending an e-mail to the following address: **ht-dept-finance@fht.org**



www.humantechnopole.it