The year 2022 concludes with the implementation of our strategic plan for 2019-2022. During this period, progress on all pillars entailed on the strategic plan was significant. As noted during the recent Institute evaluation for 2018-2021, “IIT underwent a remarkable modernisation of its research, commercialisation, marketing and management strategies and processes, significantly broadening its outreach and impact.”

In 2022, IIT experienced its best year ever in terms of attracting funds from various sources, with EU projects remaining the main source, and with national and industrial projects contributing substantially to the overall revenue. Intra-Institute collaborations were strengthened, and are expected to expand further in the future, as solutions combining Artificial Intelligence and Advanced Telecommunication Networks gain growing interest. Synergies with other Institutes within NCSR Demokritos were also reinforced through several research projects and initiatives, in the domains of health, materials, energy and environment.

Among the year’s highlights, IIT participates and co-defines the agenda for the evolution of the European AI landscape via projects related to the European AI-on-demand platform (AIoD). IIT’s ahead Digital Innovation Hub (DIH), coordinates the largest European DIH (EDIH) of the country, SmartAttica. IIT coordinates and participates in pioneering European research projects on 6G networks, secure frameworks for IoT, edge and cloud resources, as well as, in several European initiatives in security and defense.

But what characterises 2022 is our novel applications in Culture, in collaboration with the Hellenic Ministry of Culture and Sports, the Aylon Lyceum and the archeological space of the Lyceum of Aristotle. The Aylon Lyceum is housed in the building of the Athens Conservatoire, in the heart of Athens. In this space, the Institute has implemented an interactive digital exhibition where philosophical ideas of ancient Greek philosophers are revived using cutting-edge technologies such as smart interactive digital walls, data collection and content management tools to improve user experience. Aylon Lyceum will be open to the public in October 2023. Adjacent to Aylon Lyceum, is located the archeological site of the Lyceum of Aristotle. In this emblematic space for human-ity, IIT together with Foster+ Partners and The World Human Forum set up a proposal for a novel visitor experience that can also be applied in other open archaeological sites. Our proposal was approved by the Central Archeological Council, and we are currently working on its detailed design and implementation, aiming at setting up a Philosophy Hub in the centre of Athens.

This work, which brings together a multidisciplinary team of philosophers, social scientists, museologists, computer scientists, and others, is very much related to our latest initiatives on AI and Ethics. We recently set up AI Politeia, a multidisciplinary research group on responsible, trustworthy, and democratised AI.

2022 has also been a milestone year for IIT, initiating coordinated efforts towards a culture of equal opportunities and promoting diversity and inclusivity. In full alignment with the NCSR&D policy on gender equality, IIT set up a series of actions to address tackling unconscious bias and stereotypes in recruitment, achieving equality in job retention and career development, diversifying leadership, and ensuring accessibility for all.

Our main objective for the forthcoming period is to further promote Research Excellence, building on the created ecosystem and processes. The updated strategic plan for 2023-2026 demands a multifaceted approach that incorporates infrastructure acquisition, establishment of additional support mechanisms for researchers, provision of incentives for attracting and retaining personnel, and means for ensuring long-term funding and research continuation opportunities. The strategic plan also demands the continuous collaboration and feedback of IIT personnel in all its aspects to meet future challenges.
financials

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**Total**

€8,146,461

**EU Research Grants**

€5,714,256

**National Research Grants**

€1,137,684

**Other funding**

€364,332

**Regular Public Budget**

€930,187

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year at a glance

**People**

255

**Publications**

113

**New Research Projects**

24

**PhD Students**

30

**Postdocs & PhD Scholarships**

12

**Competitive Funding**

€7,2M

**Postdocs**

30

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Annual Report 2022 | IIT | NCSR DEMOKRITOS
The Institute of Informatics & Telecommunications coordinates numerous projects in the digital culture domain and participates in the creation of innovative applications by using cutting-edge technologies such as content management, human-computer interaction, audio analysis and music information retrieval.
AYLON LYCEUM
Where intangible ideas become experiences

The Institute of Informatics & Telecommunications of NCSR Demokritos (NCSRD), in collaboration with the Hellenic Ministry of Culture and Sports, developed Aylon Lyceum, a space fostering new ways to exhibit the intangible. The name Aylon Lyceum demonstrates the notion of visualising the immaterial (in Greek “aylon”) in a place devoted to dialogue and education (inspired by the role of Aristotle’s Lyceum in ancient Greece).

The Aylon Lyceum is housed in the building of the Athens Conservatoire, in the heart of Athens. In this space, the philosophical ideas of ancient Greek philosophers are revived in model exhibitions where visitors engage in a philosophical experience. The exhibits utilise cutting-edge technologies such as smart interactive digital walls, visit customisation tools and applications that collect data which feed back into the experience.

In the first exhibition Eudaimonia meets Democracy in a philosophical group experience. Visitors will reflect on abstract ideas and values and ponder on the ever-present theme of how we can “live well together”. Ideas are understood by visitors through personal experience, reflection and decision-making.

Aylon Lyceum, will also host educational programs for schools, talks and special events, as well as experimental art events through synergies with the Athens Conservatoire. We envision this space to serve as a Hub for public dialogue on issues such as the future of Democracy.
During 2022, the Multimodal Analysis Group (MagCIL) has published papers presenting AI methods for analysing cultural content, such as music and movies. Research has been conducted in the direction of automatically recognising emotions related to musical content or camera movements that are related to aesthetics in cinema. In addition, MagCIL participated in an event at the Megaron Athens Concert Hall that included a speech on “Music and AI”, accompanied by a concert of experimental jazz and related AI-enhanced visualisations.

Also, 2022 was the beginning of the museek project, coordinated by IIT and MagCIL, that monitors the public performance of music in Greece. This project aims to build an algorithmic pipeline that runs on a small device (such as Raspberry Pi) and monitors songs in spaces such as restaurants, hotels, cafes, clubs and bars. A “public performance” of music is defined in most EU and US countries copyright laws to include any music played outside a small circle of friends and family that occurs in any public place. The core algorithmic infrastructure of the project, utilising its expertise in fields such as audio analysis, music information retrieval and signal processing, is the official music copyright collective management organisation of Greece and is responsible for pricing such businesses that use music.

SmartSubs
The aim of the SmartSubs project is to develop and improve the existing know-how of automatic speech recognition and to promote research that aligns live oral performances with written subtitles, in order to develop an application which will allow subtitles to be displayed on smartglasses in theatrical performances and generally live cultural activities. The application creates an innovative way of providing subtitles in live performances that provides uninterrupted viewing of the performance and enhances the viewer’s experience compared to hitherto solutions. It is addressed to deaf / hard of hearing and the elderly, making cultural content accessible to people with hearing problems through Greek subtitles in order to combat social exclusion.

Aristotle’s Lyceum
Re-engaging with Aristotle’s Lyceum

The Institute of Informatics & Telecommunications of NCSR Demokritos (NCSRD), Foster + Partners and The World Human Forum in collaboration with Hellenic Ministry of Culture and Sports, have created a proposal for the archaeological site of Aristotle’s Lyceum, using cutting-edge technology.

This proposal echoes a mutual interest on how the use of technological innovations can enhance people’s engagement with cultural heritage, thus providing a new type of cultural experience.

The proposal that was approved by the Central Archaeological Council, concerns a digital experience in Aristotle’s Lyceum that revives the life and works of the renowned philosopher. In a timber pavilion, made up of modular parts, visitors will engage in a philosophical and historical experience through the use of digital technologies. Mobile apps will provide additional information, so that visitors can interact with the content throughout their walk, re-enacting the peripatetic school.

Artificial Intelligence generated image from a custom generative model trained within MagCIL

Aristotle’s Lyceum archaeological site
ahedd offers innovative services

By the end of 2022, in its 3 years of operation, ahedd reached approximately 50 industrial national and international collaborations for the development of innovative services and the provision of high-end expertise to support the digital transformation of businesses, exploiting the R&D capacity of IIT’s labs and units and ahedd’s partnerships. Some of 2022’s flagship collaborations are the service provision contracts with the European Commission in the areas of natural language processing and machine learning as well as the expert support contracts with OTE - COSMOTE in the areas of behavioural analytics and question answering. Additionally, the testbed launched in 2021 with Vodafone as “Giga Campus”, now provides new IoT and 5G infrastructures for the demonstration of smart-city solutions to organisations and for R&D experimentation. Finally, the ongoing “1000 Pioneers for AI in Greece” initiative of ahedd reached the UNESCO IRCAI’s International list of Top 100 AI solutions for reaching the 17 Sustainable Development Goals (SDGs).

ahedd coordinates Smart Attica EDIH

Smart Attica is the first European Digital Innovation Hub (EDIH) for Artificial Intelligence in Greece operating in three critical business sectors of the Greek economy: Energy & Environment, Supply Chain & Mobility, Culture & Tourism. Smart Attica focuses on the digital transformation of SMEs and public sector organisations and aims to advance their digital maturity. The EDIH offers four types of innovation services: i) test before invest; ii) innovation ecosystem and networking; iii) skills and training; and iv) support to find investment. These services integrate the human-centric ethics-by-design European AI vision and infuse resilience and sustainability considerations. ahedd is also a partner of smartHEALTH EDIH, which offers highly specialised expertise in the flagship areas of precision medicine, cancer, medical image analysis, public sector digitalisation and infrastructure to facilitate the digital transformation of the private and public sectors.

ahedd actively participates in European digital innovation initiatives that foster piloting, networking and policy-making activities, such as the Big Data Value Association (BDVA), the Digital SME Alliance and European projects, such as EUHUBS4DATA, EUROCC2, DIH-World, DIH4CPS, DIH+, i4Trust, SUSTAIN Euroclusters. At national level, ahedd coordinates joint activities with various key stakeholders in order to exchange best practices, avoid duplication of efforts and perform better targeting in the respective strategies.

The NCSRD - Qualco Fellowship programme was distinguished with the Gold Award in the “Business & Academic Institutions Coopera- tion” category, at the Hellenic Responsible Business Awards 2022. The programme is a 5-year partnership nurtured by ahedd, and it entails research activities in AI with applications in FinTech and proves to be an excellent example of how research and industry can intersect and innovate.

ahedd’s plans for 2023

ahedd aims to become NCSRD’s digital innovation vehicle. In 2023, ahedd aims to i) develop a solid yet flexible structure for its operation; ii) play a significant role in EDIHs; iii) develop innovative AI products that exploit cutting-edge research results that tackle business and societal needs; iv) expand the testbed test bed; v) connect to policy-making stakeholders and perform targeted networking. ahedd’s activities will further contribute to the digital transformation of Greece and the strengthening of the economy at both local and national levels.

More info: ahedd.demokritos.gr

Ahedd receives a Gold Award

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Since its inception in the mid-1980s, the Network Operation Center (NOC) has consistently pioneered and propelled the evolution of the Internet in Greece. Tasked with the essential mission of providing network connectivity, security, and core network services, the NOC has faithfully catered to the needs of the expansive NCSR Demokritos (NCSRD) campus. Its operational responsibilities include the management and maintenance of the campus’s core network infrastructure. In addition, the NOC actively facilitates research and development by offering consultations, designing, and deploying bespoke network infrastructures, and utilizing innovative technologies to create tailored solutions.

One of the most noteworthy activities of the NOC, in collaboration with the Infrastructures Team of the eGovernance Office, has been the deployment of a new campus-wide network infrastructure in the frame of project HEPHAESTUS. The deployed infrastructure covers both wired and wireless networks as well as telephony service. This initiative showcases the commitment of the NOC to maintain cutting-edge technology, ensuring efficient, secure, and high-performance connectivity within the NCSRD campus. Yet another significant accomplishment is the successful procurement of funding for several high-profile projects under the provisions of EDF (European Defense Fund) project, SNS (Smart Networks and Services) Security Project for 6G evolution, Horizon Europe Data projects for the realisation of Cloud Continuum, Meta Operating Systems, and swarm intelligence.

The NOC is steadfast in its commitment to amplify its twin foundations of operational distinction and pioneering research. In alignment with this vision, the NOC is set to absorb a portion of the current research efforts undertaken by the Media Networks Lab (MNL) along with key personnel. This strategic manoeuvre serves to establish a new research group, christened as the Smart Networks and Cyberdefence (SNC RG). Our ambition is for the NOC to continue providing cutting-edge services to our users while leading the charge in network research and development.

This is a milestone year for the eGovernance Office and its Applications Design & Development Team. The Team received the silver award in the Digital Governance Awards for 2022 for the “Best Practice Idea” in the category “Public and Local Government Administration.” The Team participated in the contest with the Review Platform, which they designed and implemented to support the evaluation process of all Greek Research Centres for the period 2018-2021. This is the first time that such an evaluation process is implemented with a computational platform. The whole process was specified and monitored by the National Council for Research Technology and Innovation (ESETEK) along with the General Secretariat for Research and Innovation (GSRI). Throughout the evaluation process, the Team provided training and support to all the Research Institutes, as well as to ESETEK members and GSRI officers. It must be noted that Review will continue to be used in future evaluations, and will act as a repository in the annual updates of the information for each Institute.

Another significant achievement of the Team was the implementation of the Review Statistics platform, which provides visualisations of all collected data (e.g. personnel, financial data, bibliographic data etc.) for the country’s Research and Innovation Ecosystem, through a user-friendly interface. This is a tool for researchers, Institute Directors, and policy makers to support decision making.

The next milestone product for the Team is the unified eGov platform for NCSR Demokritos (NCSRD). This is under development and is scheduled to go live by the end of 2023. The platform will offer a one-stop-shop service for the Centre’s online services used by personnel through a single sign-on. The Applications Design & Development Team is closely collaborating with the Help Desk Team of the eGovernance office. The Help Desk was recently set up to support NCSRD personnel in the computational services provided.
In 2022 the Institute of Informatics & Telecommunications attracted 24 new research projects

**24 new research projects 2022**

- **AI4EUROPE**
  - An AI-on-Demand Platform to support Research Excellence in Europe
  - Horizon Europe - SKEL | The AI Lab
  - 1/7/2022 - 31/12/2025
  - NCSRD budget: 547,500€
  - ai4europe.eu

- **Pre-PAI**
  - Preparation of the development of the AI-on-Demand Platform
  - Horizon Europe - SKEL | The AI Lab
  - 1/10/2022 - 31/7/2023
  - NCSRD budget: 13,375€

- **EVENFLOW**
  - Robust Learning & Reasoning for Complex Forecasting
  - Horizon Europe - SKEL | The AI Lab
  - 1/10/2022 - 31/10/2023
  - NCSRD budget: 727,500€
  - evenflow-project.eu

- **DIH4CPS**
  - DIHs for Embedding Interoperability in Cyber-Physical Systems of European SMEs
  - Horizon Europe - SKEL | The AI Lab
  - 1/3/2022 - 31/10/2023
  - NCSRD budget: 20,000€
  - dih4cps.eu

- **reBook**
  - Digital platform for republishing historical Greek books
  - National projects - CIL
  - 4/8/2022 - 31/12/2023
  - NCSRD budget: 7,500€
  - i4trust.org

- **aerOS**
  - Autonomous, scalable, trustworthy, intelligent European meta Operating System for the IoT edge-cloud continuum
  - Horizon Europe - MNL
  - 1/9/2022 - 31/8/2025
  - NCSRD budget: 500,000€
  - aeros-project.eu

- **ICOS**
  - Towards a functional continuum operating system
  - Horizon Europe - MNL
  - 1/9/2022 - 31/8/2025
  - NCSRD budget: 468,375€
  - icos-project.eu

- **ENEXA**
  - Efficient Explainable learning on Knowledge Graphs
  - Horizon Europe - SKEL | The AI Lab
  - 1/10/2022 - 30/9/2025
  - NCSRD budget: 411,250€
  - enexa.eu

- **Frisco**
  - Fighting fakelord Content Online
  - Horizon Europe - SKEL | The AI Lab
  - 1/10/2022 - 30/9/2025
  - NCSRD budget: 309,337€
  - friscoproject.eu

- **TITAN**
  - AI for Citizen Intelligent Coaching against Disinformation
  - Horizon Europe - SKEL | The AI Lab
  - 1/9/2022 - 31/8/2025
  - NCSRD budget: 766,250€
  - i4trust.org

- **SUSTAIN**
  - Building Smarter Indicators
  - European Defence Fund Action - MNL
  - 1/12/2022 - 31/5/2026
  - NCSRD budget: 215,070€

- **PosITIVE LEARN**
  - Distance learning personalisation: technological relief and wellbeing
  - Erasmus+- CIL
  - 28/2/2022 - 27/2/2025
  - NCSRD budget: 57,911€
  - positive-learn.eu

- **DRONES@STEAM**
  - Fostering Digital Transformation in VET Schools and creating new job prospects in the labour market
  - Erasmus+ - MNL & Mind
  - 28/2/2022 - 27/6/2024
  - NCSRD budget: 44,330€
  - dronesteam.eu
Annual Report 2022

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24 new research projects 2022

JOBS4ALL
- Strengthening the Employability and Key Competences of Young People with Disabilities Through the Digital Transformation and Modernisation of Youth Work
- Erasmus+ - NML & Mind
- 2/5/2022 - 1/5/2024
- NCSRD budget: 58,800€
- jobs4all-project.eu

SCIBIO
- Science outreach: The example of Biobanks in Europe
- Erasmus+ - CIL
- 15/12/2022 - 14/6/2025
- NCSRD budget: 53,539€
- scibioeu.eu

Business People in Green Dialogue
- Knowledge Valorisation and Awareness Dialogue among Business People and Newcomers for a Resilient Green Development
- Erasmus+ - CIL
- 31/5/2022 - 30/8/2023
- NCSRD budget: 7,010€
- greendialogue.org/

JOBS4ALL
- Strengthening the Employability and Key Competences of Young People with Disabilities Through the Digital Transformation and Modernisation of Youth Work
- Erasmus+ - NML & Mind
- 2/5/2022 - 1/5/2024
- NCSRD budget: 58,800€
- jobs4all-project.eu

SCIBIO
- Science outreach: The example of Biobanks in Europe
- Erasmus+ - CIL
- 15/12/2022 - 14/6/2025
- NCSRD budget: 53,539€
- scibioeu.eu

Business People in Green Dialogue
- Knowledge Valorisation and Awareness Dialogue among Business People and Newcomers for a Resilient Green Development
- Erasmus+ - CIL
- 31/5/2022 - 30/8/2023
- NCSRD budget: 7,010€
- greendialogue.org/

2022

SmartAttica
- SmartAttica DIH, the Athens region Green Innovation hub for Artificial Intelligence in Energy and Environment, Supply chain and mobility, Culture and Tourism
- Horizon Europe - SKEL | The AI Lab - ohedd
- 1/1/2022 - 31/12/2025
- NCSRD budget: 1,300,430€
- smartattica.eu

SmartHealth
- European Digital Innovation Hub for Smart Health Precision Medicine and Innovative E-Health Services
- Horizon Europe - SKEL | The AI Lab - ohedd
- 1/1/2022 - 31/12/2025
- NCSRD budget: 341,865€
- smarthealth-edih.eu

CREXDATA
- Critical Action Planning over Extreme-Scale Data
- Horizon Europe - SKEL | The AI Lab
- 1/1/2022 - 31/12/2025
- NCSRD budget: 794,375€
- crexdata.eu

OASEES
- Open Autonomous programmable cloud appS & smart EdgE Sensors
- Horizon Europe - MNL
- 1/1/2023 - 31/12/2025
- NCSRD budget: 835,000€
- oasees-project.eu

PRIVATEER
- Privacy first Security Enablers for 6G Networks
- Horizon Europe - NML
- 1/1/2023 - 31/12/2025
- NCSRD budget: 476,625€
- privateer-project.eu

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- Horizon Europe - NML
- 1/1/2023 - 31/12/2025
- NCSRD budget: 476,625€
- privateer-project.eu
Education holds a crucial position within the Institute of Informatics & Telecommunications’ action plan and the Institute has continued to prioritise the development of this pillar in its activities throughout 2022.

One of the main goals for Education is and promote existing initiatives and partnerships. To that end, the Institute collaborates with Greek Universities to offer a wide range of comprehensive joint Master’s programmes. These programmes cover various fields, including Artificial Intelligence, Data Science, ICTs and Special Education, Clinical Exercise and Applications of Technology in Health. It is noteworthy that the MSc programmes in AI and Data Science include dedicated courses on ethics, ensuring that students gain a comprehensive understanding of the relevant ethical considerations and regulatory frameworks. Additionally, in 2022, a state-of-the-art interinstitutional MSc programme, the MSc in Quantum Computing and Quantum Technologies, was founded. It is led by the Institute of Nanoscience and Nanotechnology (INN) of NCSR Demokritos (NCSRD), in collaboration with IIT and the Democritus University of Thrace. This initiative is closely aligned with the newly established Institute of Quantum Technology (INN) of NCSR Demokritos (NCSRD), during which researchers delivered engaging talks covering the full spectrum of the Institute’s diverse research domains, including a 5G network programmability training session.

More info: iit.demokritos.gr/about-education/

In 2022 the Institute’s Communications Team grew bigger with the addition of dynamic and passionate members that have diverse expertise in delivering results in the frame of dissemination and communication activities. The Team became increasingly involved in additional European and National projects, and continued to lead communication strategies utilizing the full spectrum of communication tools and channels available. With the aim to communicate Science and help raise awareness of scientific achievements in the relevant target audiences, the team members continued to work on creating content, branded visual material, infographics, videos, managing websites and social media.

The Team continued to support the Director, the Labs and Researchers, and in many cases, NCSR Dermokritos (NCSRD) centrally, claiming responsibility for the organisation of high level events, forums, conferences, summer schools, info days and plenary meetings, amongst others. As daily life returned back to normal, in the post-Covid era, the Team put its efforts in bringing personnel together in the workplace by organising scientific activities, which are co-organised by IIT and INN. Additionally, the ahead Digital Innovation Hub continues to offer tailor-made executive training programmes. Lastly, it is important to highlight the Institute’s annual participation in the 57th Summer School of NCSR SRD, during which researchers delivered engaging talks and presentations.

More info: iit.demokritos.gr/communications-office
Artificial Intelligence (AI) systems have the potential to reshape our lives, our work, our learning, and interaction patterns. AI is able to realise tremendous benefits for economic growth and prosperity for our societies and our planet by providing solutions to a wide range of societal, health and environmental challenges. At the same time, AI entails numerous potential risks related to discrimination and intrusion, as well as individual and collective social harms and the loss of liberty and autonomy, among others. However, the ability of AI to realise its full potential, depends on the way that we will choose to seize this opportunity and address the challenges of this technological revolution at a national and global level.

The responsible and trustworthy development, deployment and utilisation of AI systems are essential to ensure its positive impact on society. It is important to ensure that these technologies are designed in a manner that aligns with our values and moral principles, such as fairness, democracy, privacy, and societal well-being. Furthermore, by adopting responsible AI development practices, such as ethical frameworks, robust data governance, and human-centric design, and ensuring trustworthiness through explainability, auditing, and monitoring, as well as appropriate legal frameworks we can promote the responsible and trustworthy use of AI.

NCSR Demokritos (NCSRD) and the Institute of Informatics & Telecommunications with its long history in Informatics, has always played a pivotal role in related AI research. IIT actively contributes to key initiatives in the area of responsible and trustworthy AI, such as the UNESCO’s first global framework for the ethical use of AI, the AI4People initiative, as well as the National AI Strategy for Greece (Democratizing AI white paper). While it collaborates with leading organisations such as the IEEE Standards Association for the promotion of ethics in AI and the certification of AI systems. IIT offers dedicated educational programs and courses in the area of ethical and trustworthy AI aiming to support the higher and industrial education landscape.

Striving for an AI ecosystem rooted in ethical principles and appropriate legal frameworks that will contribute to a future where AI systems serve humanity in a fair, accountable, and beneficial manner, IIT has formed the AI Politeia Lab with a twofold research and innovation mission: (a) to conduct multi and interdisciplinary research aiming to foster ethical, trustworthy and democratized AI (‘ethical AI Intelligence’) that embodies our values and respects our human rights, examining at the same time emerging policy perspectives; and (b) to develop and implement ethical, trustworthy AI methods (‘ethical AI Infrastructure’) for diverse industrial contexts and application domains. Empowering this way, a technological future that is reliable, responsible and democratic for our present and future societies, respecting the values, rights and well-being of people and nature.

Anti-Discrimination Committees of thirteen Greek research centers & independent research institutes, but also in the multi-stakeholder initiative “Greek Innovation Lab for Women” (GI4L4W), that aims to promote research, innovation, and entrepreneurship of women in Greece.

In full alignment with the NCSRD policy on gender equality, this year IIT also developed a series of targeted strategic actions regarding critical equity, diversity, and inclusion issues, such as tackling unconscious bias and stereotypes in recruitment, achieving equality in job retention and career development, diversifying leadership, and ensuring accessibility for all. These actions include several awareness, training and educational initiatives related to preventing and combating a broad range of commonly occurring forms of discrimination in the workplace. The application, monitoring and evaluation of the IIT strategic actions will be held by an internal multidisciplinary working team.

Overall, IIT has prioritised the integration of equity, diversity and inclusion into the policies, structures, practices, mindsets, and decision-making processes of the Institute, while these values remain key determinants of its results in the fields of research, innovation, and education. IIT strives to be a substantially equitable and inclusive workplace and educational environment, where its staff and students can reach their full potential and thrive.
The Scientific Council of IIT

The Scientific Council of IIT consists of Researchers and key personnel who meet regularly so as to discuss current issues of the Institute that require strategic decisions.

The Evaluation & Advisory Board of IIT

The Institute’s new Evaluation & Advisory Board, set up in 2022, is composed of five distinguished researchers in fields relevant to IIT’s research areas.

ESETEK - National Council for Research, Technology and Innovation

As a member of ESETEK, the IIT Director, took over the responsibility for the design, implementation and use of the Eview computational platform for the evaluation of Research Institutes and Research Centers in Greece.

The Scientific Council of IIT

As a member of the National Commission for Bioethics & Technoethics, IIT Director contributed in the Commission’s recommendation for tackling disinformation and misinformation during the pandemic crisis of Covid-19.
IIT strategic plan 2023-2026

The main objective for the forthcoming period is to further promote Research Excellence, building on the created ecosystem and processes. To accomplish this, IIT’s Strategic Plan was enhanced incorporating organisational changes, as well as an action plan for promoting basic research.

The focus is initially on setting up the necessary support mechanisms. During the previous period (2019-2022), IIT established a set of instruments for the horizontal support of activities (Administrative Unit, Communications Office, IT Office, Network Operation Center, eGovernance Office), extended the network and computing infrastructure, along with the building assets, and set up a funding mechanism to support these actions. The challenge for the next period is to build on the existing support mechanisms to facilitate the researchers’ daily work and improve the quality of the research outcomes. The significant income which was assured in 2022 through European and national research and innovation projects, enables the Institute to proceed with the following actions:

- Setting up: a Project Management and Proposals Support unit; a Human Resources unit; a unit for handling issues on equality, diversity, and inclusion; a unit for IIT Buildings maintenance and security;
- Expanding the Communications Office and the Education Office.

In parallel, the discussion on the re-organisation of IIT Research Labs, to support research work more effectively has been initiated. This is a necessity since the scientific and industrial landscape in the Institute areas is moving at an incredibly fast pace, with funding schemes, orientation and application fields rapidly shifting and adapting to global developments. The proposed scenario involves the following actions:

- Maintain the two Divisions: Intelligent Information Systems (IIS), Division of Telecommunications and Networks (T&N);
- Set up a Board for each Division that will monitor the implementation of the IIT research, innovation, and education strategy for the Division;
- Organise Labs in a more dynamic way, in the form of research groups. The aim is to adapt to the dynamic scientific landscape, as well as to give more incentives and roles to younger researchers.

The attraction of talented researchers to support these objectives requires additional effort, exploiting and extending our existing initiatives, such as the joint PhD programmes, the joint MSc programmes, the fellowship programmes. All the above should be accompanied by more focused and well-organised efforts to exploit funding schemes more explicitly directed to basic research, like ERC and Marie Curie programmes.

In its efforts the Institute still must face the long-standing hindrances related to bureaucratic barriers, difficulties to find and retain personnel and have a stable revenue influx. The opportunities that arise from the incredible penetration of AI and broadband networks in everyday life and business, offer on the one hand new opportunities, and areas of interest but, on the other hand, leave an extremely small margin of error and require much faster processes and decision-making mechanisms to avoid being left behind.
our labs

Computational Intelligence Laboratory

What is your mission as a Lab?
CIL’s mission is twofold: on the one hand it focuses on conducting core research in the fields of machine learning, deep learning and multimodal signal analysis (image, music, speech and video analysis, as well as information fusion), while on the other hand the members of CIL participate in building real-world AI applications from various domains: culture, health, environment and AI-driven B2B and B2C applications.

Which of 2022’s activities would you like to highlight as the most noteworthy?
The Lab participates in more than 15 research projects, the following started during 2022: FaRAOD (Frugal and Robust AI for Defense Advanced Intelligence), mostly conducting research in the fields of transfer learning and few-shot domain adaptation for military data), Museek (monitoring the public performance of music in Greece, via an AI-powered small device that will be installed in spaces such as restaurants, hotels, cafes, clubs and bars), AI-related projects (various AI projects with the private sector, either in a consulting or a development context, most of them associated to speech analytics and computer vision), reBook (development of a smart digital platform using new techniques and methodologies for text recognition reducing the time and cost of all processes related to the re-publishing of historical Greek books), AI4GeoApplications (Investigation of the synergistic use of Earth Observation and Machine Learning in Geological mapping, Hydrogeology, Mineralogy and Disaster Management) and 3 Erasmus+ projects [SCIBIO, SCience outreach: The example of BICOBanks in Europe - POSITIVE LEARN, Distance learning postfication: technostress relief and wellbeing - Business People in Green Dialogue, Knowledge Valorisation and Awareness Dialogue among Business People and Newcomers for a Resilient Green Development] During 2022, CIL members also strengthened collaborations with medical professionals and major national cultural and environmental institutions.

What are your plans for the future?
In the framework of the planned reorganisation of the Institute at Division level, we intend to strengthen our collaborations within the Institute and contribute to the overall advancement and improvement of its performance. We are also working towards strengthening our position and visibility in our research community by organising several international conferences and other events. We plan to increase our publication rate up to 50 per year by 2025 and our citation rate to 2000 per year. We are also working towards implementing and deploying hardware/software infrastructures and tools that will provide ML services to partners and external users. Additionally, our funding targeting will be towards the EU calls for Culture and Creativity, as we plan to use our ongoing scientific expertise in the fields of document analysis, music information retrieval, image aesthetics recognition and content-based recommendation of multimodal content. Our educational goal is to have six PhDs in the next 4 years, i.e. 1.5 average PhDs per year, a significant increase compared to the previous period. In innovation, our plan is to reach a budget of 100K euros per year from industry corporations, other innovation-focussed actions.

Integrated Systems Laboratory

What is your mission as a Lab?
ISL’s mission includes a holistic contribution including educational and capability building activities, innovation and focus on application domains with horizontal and significant societal impact, achieved also through crossdisciplinarity and applied extroversive synergies including social sciences and the humanities.

Which of 2022’s activities would you like to highlight as the most noteworthy?
In 2022, ISL coordinated popAI project successfully through the first interim review. popAI is the single project of the EU security research cluster addressing, in a dedicated manner, human factors and ethical, societal, legal and organisational aspects of using AI in support of Law Enforcement. EU Green Deal project TREADS also started in 2022, with ISL being a key research partner involved in climate security, simulation, environmental sensors, ML-based analytics and decision support tools.

What are your plans for the future?
Key priorities and application areas for the forthcoming period are Security and Cybersecurity including Climate Security and expanding to Defence, applying research on sensors, data fusion and analytics, C2I systems as well as VR/AR/MR & Gamification. At the same time, ISL aspires to expand its roster of PhD, MSc and internship students and improve its bibliometric scoring. Key targets are also the promotion of OCILLS, C2I platform and the provision of services and solutions in physical and cybersecurity in the context of IIT Digital Innovation Hub and other innovation-focused actions.
What is your mission as a Lab?

MNL is one of the most prestigious Labs at national level, having contributed to the introduction and facilitation of new technologies related to telecommunication and smart networking in the Greek community. The main mission of the Lab is the research and development in the fields of Telecommunications (5G, beyond 5G towards 6G), Software and AI-assisted programmable Networks, Cloud Computing and Edge-Cloud Continuum (IoT-edge-Cloud), Swarm Intelligence, Vertical Applications (V2X, UAVs, UGVs) and Cybersecurity. The activities in these fields are currently supported by two research groups, SNC and FRONT. Additionally, MNL research groups deliver educational programmes and workshops actions for the field, and effective innovation and knowledge transfer through the participation in startup accelerator programs at national and European level.

Which of 2022’s activities would you like to highlight as the most noteworthy?

In 2022, MNL continued its successful implementation of multiple European and national projects revolving around the evolution of 5G and beyond technologies. Research efforts culminated in the production of publications in esteemed journals and conferences. In 2022, the H2020 aeroS and ICoS projects started, which develop a MetaOS for the provision of IoT-edge-Cloud Continuum, handling the IoT data in a unified way across heterogeneous environments. Furthermore, MNL established and extended numerous relevant technical and infrastructural assets, notably including the EVOLVED-5G Athens’ platform and the 5G mobile platform for mission critical services. MNL also organised the final showcasing event of 5GIDRONES project at the stadium of Egaleo Municipality. During this showcasing event, two demos were presented, namely a Drone Autonomous Flight over 5G, and a UAV-assisted 5G Coverage Extension. Furthermore, in the frame of RESPOND-A project, MNL organised a pilot at the Eleonas area of Egaleo Municipality, which evaluated the performance of RESPOND-A platform in a severe earthquake scenario and demonstrated the rescue of a victim inside a collapsed building and the joined rescue a victim and a rescuer inside a flaming building, using, among other innovative technologies, a private 5G network.

What are your plans for the future?

The research groups of MNL will continue their research in cutting edge technologies like 6G novel architectures, 6G programmability and integration with native-AI modules for verticals adoption, PAN-European experimentation platforms for 6G systems. Major targets are also the integration of distributed/cloud environments towards a cognitive-driven continuum infrastructure with zero-touch management. Finally, a major goal is the creation of 6G experimentation facilities for industrial stakeholders, SMEs and the academic and research communities, in combination with the evolution of existing infrastructures like the SGENESIS Athens platform. Following the upcoming restructuring of the Telecommunications Division, the activities attributed to SNC research group, will continue under the umbrella of the Network Operations Center (NOC).
Wireless Communications Laboratory

What is your mission as a Lab?

WiCom specialises in electromagnetic radiation aspects, propagation of electromagnetic waves and radio access of various communication systems including advanced transmit/receive techniques and MIMO systems. The Laboratory has long experience in system-level analysis, simulations and development of software tools; antenna design and interaction between antennas and human-body. Recently, special focus is given on antennas with magnetic materials or metamaterials, wearable antennas including design and implementation of textile antennas (suitable for smart clothing).

Which of 2022’s activities would you like to highlight as the most noteworthy?

In 2022, WiCom continued its close cooperation with SKEL | The AI Lab under the ARIADNE project, the fist initiative within IIT that bridges telecommunications and AI/ML domains in 5G networks. Significant effort was devoted to the study of Reconfigurable Intelligent Surfaces (RIS), a hot topic in wireless communications especially for mmWave networks and beyond 5G technologies. It is noted that an Early Stage Researcher was recruited in the frame of Marie Curie ITN METAWIRELESS to work on the design of RIS. Moreover, channel modelling at the D-band was investigated in depth. Our activity also focused on design of High and Medium gain antennas at D-band (reflector antennas, dielectric Lens antennas) but also at X-band (ESA, DESHLIA project). Furthermore, significant research effort was applied in the field of reconfigurable wearable textile antennas (M-REWEAR project). A number of results have been published in international journals (IEEE TGCN) and conferences (VTC2022-Spring, PhARC2022, MediCom2022, EUCAP2022, MobiHealth2022, TELFOR2022). Members of the Lab received the Outstanding Paper Award IEEE ComSoc2020 and gave invited talks to scientific events (PAINLESS 4th Summer School, MediCom2022). It is worth noting the successful completion of one PhD supervised by our Lab.

What are your plans for the future?

In the upcoming period, our work will be based on the main research directions of our Laboratory aiming also at further developing our expertise on evolutionary technologies. Specifically, we will exploit our previous work on 5G and 6G systems and technologies especially for mmWave frequencies, Reconfigurable Intelligent Surfaces, PHY techniques and network optimisation based on AI/ML techniques, antenna technologies and wearable textile antennas. WiCom will have the opportunity to work on 6G Terrestrial-to-Non-Terrestrial networks integration through the SNS project ETHIER, as well as to closely work together with MetaMaterials Inc. on RISs on the already agreed work plan. The research activity in the area of wearable textile antennas will continue based on the experience of the previous years and the secured funding until September 2024. In order to attract external funding, we will exploit opportunities under Horizon Europe and especially the Smart Network and Services (SNS) work programme, European Space Agency (ESA), our current collaborations with private companies, Universities/Research Centres as well as upcoming national funding programmes.
What is your mission as a Lab?

In an environment where AI is both a “friend and a foe”, SKEL aspires to be a trusted source of AI research and innovation. We strive for a balance between: (a) scientific excellence in selected research areas, through high-impact publications, and involvement in major AI events; (b) a three-pronged approach to education, covering research training of graduate students, skill development for IT professionals, and technological literacy for the wider public; (c) transferring innovation & knowledge to the market, as open-source projects, commercial products, or dedicated startups; (d) societal impact, through the democratisation of AI, allowing everyone to benefit from it.

Which of 2022’s activities would you like to highlight as the most noteworthy?

Last year has brought with it the fruits of a conscious and intense effort towards high-quality research and impactful innovation. We initiated 9 new projects, covering intriguing topics and impressive use cases: the new European AI-on-Demand platform, trustworthy misinformation detection, neurosymbolic learning for complex event forecasting, explainable learning on knowledge graphs and detection of online terrorist content.

Additionally, ongoing efforts have resulted in numerous research contributions, including:
- A novel transfer learning method for autoencoders, published at the ACM Transactions on Knowledge Discovery from Data (TKDD);
- Novel work on CRISPR guide RNA efficiency prediction, published in two Nucleic Acids Research (NAR) papers and awarded the Kafatos Prize;
- Significant improvements in our Complex Event Recognition engine, published in the Journal of Artificial Intelligence Research (JAIR) and the Knowledge Representation and Reasoning (KR) conference;
- Novel text mining methods to extract information from financial reports and to predict the success of ongoing clinical trials, based on biomedical publications, both presented at the Conference of the Association for Computational Linguistics (ACL).

Furthermore, we have contributed significantly to various AI-related activities, including:
- Chairing the International Symposium on Temporal Representation and Reasoning;
- Organising a summer school on Data Science for Climate Modeling;
- Funding numerous research projects to develop AI methods for Earth Observation tasks, in the context of the AI4Copernicus project.

Beyond scientific excellence, we had a number of outreach initiatives, including:
- Cultural events across Europe, in the context of the VAST project, studying European values across space and time;
- The development of a physical space for the innovative exhibition on Greek ideas and ancient Greek philosophy, called “Aylon Lyceum” (Aylon meaning intangible);
- Contribution to the science communication initiative 1000 Pioneers for AI in Greece.

What are your plans for the future?

The state of the art in AI research is changing rapidly and has a direct impact on the lives of all of us. Being a research team with significant experience and achievements, we are glad to be contributing to this change. We are devoted to quality outcomes and will seek to intensify our efforts in this direction, both in basic and applied research. At the same time, we feel responsible for making sure that the technologies delivered are trustworthy and are used ethically. This is especially true in sensitive areas, such as law enforcement and counterterrorism, where we are running corresponding projects and expect relevant results. Moreover, we are devoted to the democratisation of AI, and we will carry on our multi-tiered communication and educational activities, in order to make sure that everyone will benefit from the upcoming scientific achievements.