

2019 / 2020 Annual report

NATIONAL DOCUMENTATION CENTRE





EKT NATIONAL DOCUMENTATION CENTRE



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NATIONAL DOCUMENTATION CENTRE



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2019 / 2020 ANNUAL REPORT This publication is the Annual Report of the National Documentation Centre for the period 2019-2020. The report covers a period of eighteen months: from January 2019 until June 30, 2020. We established a rolling eighteen-month reporting period which allows us to better record the ongoing activities, while the reader has a better picture of the goals set and the results achieved.

For any public interest body, the continuous production of activity reports is a sign of consistency and responsibility. For EKT in particular, which is a development agency with a wide range of activities targeting numerous user communities, reporting is also an organisational and administrative procedure as well as a means of evaluating and monitoring the progress of the implementation of our strategy and future development.

In the publication you have in your hands or on your screen, we focus on the visualisation of the information. We describe in detail the organisation's actions and services, the transition to its new era of operation after becoming an autonomous body under the Ministry of Digital Governance, and its adaptation to the new reality created by the pandemic.

In addition to publishing annual reports, we take advantage of digital media and the capabilities of our personnel to present our services and actions in the best possible way for different user communities. We therefore look forward to hearing from you and staying in touch with you.

WE ACT NOW FOR THE FUTURE

Data is the driving force behind digital transformation and the economy. At EKT, we highlight the value of data and knowledge for the design of effective public policies for research, the digital economy and society. We start from the future because we develop services and infrastructure that are permanent not opportunistic, and meet the modern needs of policy makers for the country's businesses, researchers and scientists. We design services and infrastructures for the future, permanent and not ephemeral, which meet today's policy makers' needs, for the companies and for the research and scientific communities of the country.

Dr Evi Sachini Director, National Documentation Centre





he dynamics of the Fourth Industrial Revolution are approached through quality data, robust institutions of public interest and public information infrastructures. Since EKT's early days, we have been at the centre of developments monitoring the production of new knowledge and the digitisation, aggregation, interoperability and dissemination of scientific and cultural content produced in the country.

Our aim is to provide state of the art services and quality data for policy makers, businesses, research and user communities oriented towards the digital economy. In this way, we contribute to digital transformation and the shaping of these outstanding scientific breakthroughs of our time.

In co-operation with and supervised by the Ministry of Digital Governance, we design new integrated digital infrastructures to guide knowledge and innovation stakeholders/organizations in the new data economy. The first will focus on documented public policies, providing rich data for policy-makers for the research, technology, development and innovation ecosystems. The second digital platform will consolidate our services for digital skills development, networking of scientific personnel and fostering entrepreneurship.

These two pillars will form the basis upon which EKT's digital strategy will evolve. On one hand, we will have EKT's relationship with policy making, developing effective policies and monitoring critical development parameters, while on the other hand maintaining continuous interaction with society, the scientific and research communities and the world of business and citizens.

In a rapidly evolving situation, we are moving swiftly, overcoming obstacles, augmenting our human resources' digital skills, adapting to teleworking. finding new ways to remain effective in providing services to the diverse user communities we serve.

A NEW PAGE



At EKT, we highlight the value of data and knowledge for the design of effective public policies.

2019 was a critical, transitional year in the course of EKT's development. Regardless of how mature it was from an institutional point of view, becoming an autonomous body which would be supervised by the Ministry of Digital Governance involved certain degrees of difficulty in implementation and was time consuming administratively. After a forty-year association with the National Hellenic Research Foundation, EKT's secession from it was by no means easy to achieve.

However, the process of setting up the new body moved quickly without the slightest lapse in our fulfillment of obligations. With noteworthy mobilisation of EKT's executive staff, all legal and administrative procedures for establishing our new legal entity were completed within the fall of 2019.

Surprisingly, it was the pandemic that accelerated our transition to the new environment and to the challenges of digital transformation. In the spring of 2020, during the period of the first quarantine, our working routines and all our services were adapted to the new circumstances: teleworking, collaborative workflows and weekly work monitoring rosters.

With Open Science becoming that much more vital, EKT quickly responded in a creative way. With a

quick turn around, a COVID-19 information website was developed gathering the international scientific production on a daily basis and open access scientific publications in reputable international journals. At the same time, the national aggregator of cultural content SearchCulture.gr was enriched with new features and its use increased dramatically.

The obligatory closure of the libraries found us prepared, ready for the long haul. Our digital services were enhanced for the research and scientific communities, but most importantly, the OpenABEKT service allowed a large number of libraries using it to remain fully operational for both their staff and their users.

We began a new round of webinars starting with digital skills in education. The seminars were impressively successful, with thousands of attendees from all over Greece and the world. In addition, we took the initiative of conducting an up-to-date and original survey of a large number of researchers to examine how much they were affected by the pandemic. The research findings provide policy makers with insights that can lead to key interventions.

EKT is an information hub, highlighting the value of data and knowledge for designing effective public policies. EKT's mission is to share the knowledge



it gathers with policy makers, businesses and the world of research and innovation. In a changing environment, our statistical mechanism adapts and produces specialised results across the spectrum of development activity by examining interaction and interconnection with the educational, research and entrepreneurial ecosystems.

We systematically study and analyse the country's scientific capital. We explore its mobility, its specific characteristics and the knowledge and skills it can transfer to the knowledge and innovation communities. This activity gave birth to the Knowledge and Partnership Bridges initiative, which, in collaboration with the Ministry of Development and Investments, is evolving into a hub for the promotion of business ideas and collaborations.

We continue to support the innovation and digital transformation of businesses and public organisations representing critical sectors such as Health, Energy, Circular Economy, Shipping, Tourism, Culture and New Technologies. With an updated toolbox for digital innovation and appropriate diagnostic tools, we provide high quality services utilising the great potential of Enterprise Europe Network. Our contribution as a National Contact Point is also important in strengthening research in Greece and in the orientation of young researchers. Every year we support young and accomplished researchers to take the next step in their careers.

Our effectiveness is based on the know-how acquired and the work of interdisciplinary teams. We must not forget that humans are at the core of the transformation of functions and structures of economic activity. For the dissemination of knowledge and quality content, we need many competent computer scientists, data and policy analysts, information scientists and communication specialists, specialised scientists in various sectors. Throughout all the years of EKT's presence, we have contributed to the creation of highly skilled jobs and to the development of skills that are a legacy for the country's future development.

EKT SERVICES

ePublishing

23 new publishing collaborations on the ePlatform for scientific publications

1,807 new scientific publications

SERVICES FOR CONTENT PROVIDERS

SearchCulture.gr

8 new members joined the national cultural content aggregator

194,128 new items

openABEKT

41 new libraries received the service

995,115 new bibliographic records

259

research proposals were submitted with EKT's support to the European Commission

SERVICES FOR SMEs

successful SMEs partnerships were supported by EKT

SMEs were supported in innovation management by EKT



Scientific information services

2,103 requests were met

Innovation and entrepreneurship

1,140 people at events in which EKT participated

859 requests were met in the context of the Enterprise Europe Network and by the Horizon 2020 National Contact Points

291 people found potential partners abroad

INSIGHT INTO RESEARCH AND INNOVATION FOR SOCIETY AND ECONOMY

EKT is a unique knowledge and data provider. Being part of the European Statistical System, providing Eurostat with the official national statistics on research and development (R&D) and innovation, EKT produces relevant indicators and analyses qualitative aspects of the country's innovation system. EKT's activities provide data and insight into the national system of research and innovation that proves to be necessary to the scientific community, businesses and policy makers, contributing to evidence-based policy-making.





Metrics.EKT.gr



AN EFFECTIVE STATISTICAL MECHANISM



Capturing and measuring Greek research, development and innovation (RDI) activity, producing reliable statistics and indicators is one of our key pillars and a priority of our Strategy. Our rich research, statistical and publishing activity contributes definitively to the better understanding of the country's innovation system. At the same time, we provide policy makers with strong, true, evidence of the situation, the strong points and the dynamics of the technological and innovative environment in the country.

As a National Authority of the Hellenic Statistical System, we are responsible for producing national statistics that reflect the Greek Research, Technology, Development and Innovation system. With a focus on statistical excellence and wide dissemination, we have developed an effective statistical mechanism which produces timely, accurate and reliable data. In addition, we are capable of directly analysing emerging issues, examining specific parameters -related to the broader area of research and innovation activities-, and updating our surveys and analyses, following the country's priorities and policy measures (e.g. smart specialisation), as well as international trends.

Applying international methodologies and classifications and implementing precise statistical procedures that include -amongst other thingsmanagement of electronic survey information systems, data management and processing constitutes the guarantee for producing accurate data and analyses in a rigorous way. In more detail, we produce the country's official statistics on Research, Development and Innovation, conducting large-scale surveys on an annual basis and following strict methodological criteria in accordance with obligations undertaken as a National Authority of the Hellenic Statistical System. Data are presented by Eurostat databases and are used as a reference by international organisations, such as the OECD and the EU, for the purposes of analysis and comparisons at European and global level. These indicators and data on research and innovation performance in Greece are also used in the cycle of planning, organising, implementing, assessing and redesigning public policy on research, development and innovation.

Furthermore, data produced by EKT on RDI are used by international organisations and bodies for the purposes of European initiatives (e.g. Europe 2020, European Semester, European Research Area) or international initiatives (Sustainable Development Goals). Relevant reports and analyses are also available in scoreboards, such as EU's European Innovation Scoreboard, and Digital Economy and Society Index - DESI).

In addition, EKT produces national, official data referring to important aspects of the country's research and innovation system, such as specialised human resources (e.g. annual national statistics on PhD graduates) and participation of Greek research community in EU's research and innovation projects funded by Framework Programmes, as an official national contact point. Beyond that, EKT conducts primary surveys for assessing national funding policy measures, funded by National Strategic Reference Framework, which support specialilsed human capital, research and tertiary education in Greece. At the same time that EKT's indicators are regarded to be a benchmark for monitoring the implementation of national and regional Smart Specialisation Strategies.

RESULTS



22 pan-Hellenic statistical surveys



18,000 completed e-questionnaires



60%-100% response rate to statistical survey



100% timely publication of European statistics and transmission of data



10 systematic collaborations with ministries and other authorities



42 publications with statistical survey results



46 references in printed media



691 references in electronic media

Figures include data up to 30 June 2020

GOOD PRACTICES FOR BETTER STATISTICS





We are actively involved in shaping new trends in statistical research, as well as in enriching the indicators produced by the European Statistical System, participating in relevant committees of Eurostat and Organisation for Economic Co-operation and Development (OECD). This activity enables us to update constantly our methods, integrating know-how we acquire from collaborating with leading international organisations. This enables us to feed public debate with analyses on critical parameters for a better understanding of the area of research and innovation in Greece and Europe; at the same time that policy makers are the main users of official statistics on Research, Technology, Development and Innovation.

At European level, as National Authority of the Hellenic Statistical System, we represent Greece in Eurostat on issues referring to Research, Development and Innovation, participating in working groups, which are responsible for the preparation of European statistical questionnaires, as well as for updating methodology, collection and processing of national surveys on statistical data. In addition, we undertake research activities within the framework of Eurostat's projects , at the same time that we continue an ongoing co-operation with the EU Joint Research Centre for analyses and examination of national case studies in areas, such as smart specialisation strategy and industrial transition.

The knowledge gained from our activity in the OECD, and taking part in the Committees on Scientific and Technological Policy and Policies for the Digital Economy is important. We systematically collect and present also to OECD data on RDI tax exemptions in Greece. These data are included in relevant publications and in the OECD database.

Our personnel have significant experience in RDI metrics and public policy, and are scientifically competent, having, thus, the right tools to identify good practices and analyse public policy and policy interventions, in order to improve their effectiveness. Moreover, they follow international debate and current developments in measuring science, technology and innovation production and other relevant issues, such as the mobility of specialised human resources.

New data and their increasing availability from multiple sources create new challenges and opportunities in production of official RDI statistics. Their continuous expansion and the optimal utilisation of administrative sources that provide relevant data, along with the establishment of institutional and formal forms of co-operation with the competent bodies are important priorities for our organisation, which participates in pilot projects for the exploitation of big data (experimental statistics). At the same time, internal know-how and the latest technological developments are utilised to increase security of data collected and to ensure statistical confidentiality.

As official statistics are a public good, we are working on ways to make statistical surveys easier and simpler for participants, and for results to be understood by broader audiences, not just experts. For this reason, we use modern information tools such as articles, specialised analyses, infographics, animation, etc. Additionally, we seek appropriate ways to provide open data , enabling further exploitation and re-interpretation, maintaining, at the same time, statistical confidentiality.



PROGRAMME 2019



RESEARCH & DEVELOPMENT STATISTICS	REFERENCE YEAR	PUBLICATION
Main R&D expenditure and personnel indicators	2017	
Monitoring RIS3- indicators T4201	2017	
Key R&D expenditure and personnel - provisional data	2018	0

STATISTICS FOR GOVERNMENT BUDGET APPROPRIATIONS IN RESEARCH & DEVELOPMENT (GBARD indicator)

Government R&D provisional budget appropriations with an analysis of 14 socio-economic targets	2018	0
a. Government final budget appropriations for R&D with an analysis of 14 socio-economic targets	2018	0
b. National public funding in transnationally co-ordinated R&D		

STATISTICS FOR PARTICIPATION OF WOMEN IN R&D

Indicators for the participation 2011-2017 of women in R&D

STATISTICS FOR PhD HOLDERS

Data on new PhD holders 2018





STATISTICAL PROGRAMME 2020



RESEARCH & DEVELOPMENT STATISTICS	REFERENCE YEAR	PUBLICATION
Main R&D expenditure and personnel indicators	2018	0
Monitoring RIS3 - indicators T4201	2018	Ç
Key R&D expenditure and personnel - provisional data	2019	0

GOVERNMENT BUDGET APPROPRIATIONS FOR R&D (GBARD)

Government R&D provisional budget appropriations with an analysis of 14 socio-economic targets	2019	0
a. Government final budget appropriations for R&D with an analysis of 14 socio-economic targets	2019	0
<mark>b</mark> . National public funding in transnationally co-ordinated R&D		
STATISTICS FOR INNOVATION IN ENTERPRISES		

Main indicators for innovation
in enterprises used in2016-2018Innovation Union Scoreboard2016-2018

Monitoring RIS3 - indicators T4207	2016-2018	C
Detailed set of indicators for innovation in enterprise	2016-2018	Q
STATISTICS ON WOMEN IN R&D		
Indicators for participation of women in R&D	2011-2017	0
STATISTICS FOR SCIENTIFIC PUBLICATIONS OF GREEK INSTITU IN INTERNATIONAL JOURNALS	TIONS	
Monitoring RIS3 - indicators T4207	2018	0
Detailed set of bibliometric indicators covering the whole country, by institution categories, and individual institutions	2004-2018	Q
STATISTICS FOR PHD HOLDERS		
Data on new PhD holders	2019	0



EUROPEAN STATISTICS









The new edition of the Oslo Handbook (OECD / Eurostat 2018), applied to the new version of CIS survey, has introduced significant breakthroughs in the conceptual framework and measurement of innovation. There are two types of innovation: innovations that change and develop further products of the enterprise (innovation of products, goods or services) and innovations that change enterprises' processes (innovation of business processes).

The new type of 'business process innovation' has partially replaced, without absolute comparability, process innovation, organisational innovation and marketing innovation, which were used in previous surveys The Community Innovation Survey is the official statistical survey on innovation, carried out in European Union member states. It is conducted every two years through a standard questionnaire in accordance with European legislation, the methodological guidelines of Oslo Manual (OECD / Eurostat 2018) and Eurostat guidelines, ensuring high quality and comparability of indicators.

Data are collected on product innovation (goods or services), business process innovation, the introduction of new products at firm- or marketlevel, new strategies, knowledge flows, and business collaborations, as well as public initiatives and funding that support businesses' innovative activities and obstacles that businesses face in developing innovation.

In 2019, the statistical survey was conducted to measure innovation in enterprises in Greece for the period 2016-2018. The population of the survey was 12.213 companies with 10 employees and more, in various sectors of economic activity. In co-operation with ELSTAT, approximately 180 external partnersresearchers of ELSTAT contributed to field research. The results of the survey were published by EKT in the relevant statistical report in May 2020.



Research & Development Expenditures and Personnel



Government budget appropriations for R&D (GBARD indicator)



We produce official Research & Development - R&D - statistics on an annual basis. Relevant indicators indicate R&D intensity of country's economy, at national level. These indicators refer also to personnel engaged in research and development activities, as well as R&D expenditure invested by the following sectors of economy: Business Enterprise Sector (BES), Government Sector (GOV), Higher Education Sector (HES), Private Non-Profit Sector (PNP).

A summary presenting final data on the main expenditure indicators in Research and Development for the year 2018 in Greece was published by EKT in 2020. Funding for Research and Development (R&D) contribute to strengthening a country's competitiveness, both at European level, as well as globally. Government appropriations for Research & Development activities is recorded through the GBARD Indicator (Government Budget Appropriations for Research and Development).

The GBARD indicator is one of the official compulsory statistics for EU Member States. It refers to government funding for R&D in all sectors of national economy, namely public bodies, enterprises, non-profit institutions and other bodies. The indicator highlights the priority and targeting of public policies in R&D.

We collect data on the GBARD indicator on an annual basis from all Ministries, General Secretariats and Regions, measuring appropriations for R&D in both pillars of state budget: the Ordinary Budget (OP) and the Public Investment Programme (PIP).

In 2020, the data for the government appropriations for Research and Development (GBARD indicator) in Greece were published by EKT with reference to the final budget of 2018.



NATIONAL STATISTICS

Scientific publications of Greek institutions in international journals

The national statistics that we produce referring to scientific publications of Greek institutions in international journals uses a huge volume of bibliometric (micro) data recorded in relevant international databases of scientific publications. We publish a series of bibliometric indicators based on the number of publications of Greek institutions and the number of their citations by the international scientific community.

For the purposes of this survey, the most valid and updated methodological approaches in the field of bibliometric analysis are followed, while specialised software applications developed using EKT's knowhow are used for processing primary data and measurement of bibliometric indicators.

In September 2020, the indicators for scientific publications of the Greek institutions for the period 2004-2018 were published by EKT in an electronic



edition, which also included a number of interactive diagrams and tables. Microdata was extracted from the Web of Science database. The indicators refer to Greece, as a whole, presenting its international position, and allocation of publications among different categories of institutions, and individual institutions. Analysis provides scientific publications' impact indicators that highlight research fields in which the Greek scientific community is active, achieving scientific excellence, as well as scientific networks that have been created for the purposes of scientific articles in international journals. For the first time, in addition to the established indicators, the new publication of EKT on bibliometric performance of Greek scientific community also includes indicators referring to number and impact of publications by Region, as well as scientific publications in international open access journals.



Statistics on PhD holders

Doctorate holders contribute significantly to new scientific achievements and the development of innovation systems, possessing high level of qualifications, skills and specialist knowledge. Young PhD holders in particular, with their dynamism and skills, are essentially the future of the country and a valuable asset for its transition to a knowledge-intensive economy.

National statistics on doctoral degree holders from Greek universities is carried out on an annual basis and is based on primary data completed by the doctorate holders themselves, when submitting their doctoral thesis to the National Archive for PhD Theses (EADD).

In line with our statistical programme, we published special reports presenting statistics on new doctorate holders, who graduated from Greek universities in 2018 and 2019. Detailed relevant national data on new PhD holders present their allocation among Universities, Regions, Data on ISCED8 graduates are provided by gender, age, citizenship and field of science of their specialisation, the level of education of their parents, the duration of their doctoral studies and their main source of funding, as well as data on new PhD holders' international mobility.

Participation of women in Research & Development



Through a series of activities and actions, we firmly support the aim of equal participation of women in the Greek research and innovation system. Within the framework of national statistics, we measure and record the position of women in Research and Development activities on an annual basis.

EKT's publication -published in 2020- includes statistics on participation of female researchers in academia and business, as well as their participation in European and nationally funded research projects. The aim of this particular publication is to complement the established European reports, providing time-series of indicators and data on relevant dimensions and trends at national level.

In 2020, we were the statistical national expert -representing Greece- for the collection, transmission and validation of the country's data in the flagship publication of the European Commission 'She Figures 2021'. The report is published every three years under the European Commission's Directorate-General for Research and Innovation and presents the progress made towards achieving the goal of gender equality in research, technology and innovation. Until now, we have participated in three consecutive editions: 2015, 2018 and 2021, as national expert, representing Greece.



RDI Regional Indicators

As the competent National Authority of the Hellenic Statistical System, we produce national RDI statistics, presenting also RDI data allocation among the Greek Regions.

Special characteristics and potential of local and regional ecosystems to innovate and transform knowledge constitute the main pillar for defining regional research and innovation policies. Documentation and monitoring of research, development and innovation activity, using data and indicators, is a major focal point for policy initiatives at regional level, for promoting innovative entrepreneurship, scientific excellence and their inter linkages that contribute to growth and prosperity of local communities.

Using established European Union indicators -that allow comparison with national and European averages- we aim to highlight competitive advantages and potential of Greek Regions on RDI, aspiring to achieve regional development.



Tax exemptions for Research and Development activities (2010-2016)



As part of national statistical obligations, we produce data on R&D tax exemptions that are transmitted to OECD to be included in the organisation's database and its relevant publications. R&D tax incentives are regarded to be a (indirect) form of state R&D funding for enterprises, which complements direct government funding for R&D projects and investments.

Tax incentive indicators are now used systematically to compare applied R&D state aid and relevant policy measures that support R&D in the business sector. In this context, we aim to regularly publish relevant indicators for Greece, analysing their development across time.

EKT's 2020 publication that follows the previous publication of 2017, presents data on tax incentives granted by the Greek state to support enterprises undertaking R&D activities in the period 2010-2016.



PUBLICATIONS ON GREEK PARTICIPATION IN EUROPEAN RESEARCH PROJECTS



Enabling and supporting Greek researcher participation -from the academic, research and business community- in the financial framework of the European Commission for Research and Innovation is one of our key activities. Each year, we collect data and publish special detailed reports on the performance of Greek institutions in EU programmes, such as the Programme "Horizon 2020". The publications are based on processing data that are published in e-CORDA database of the European Commission, and data we collect as a National Contact Point for specific thematic areas of Horizon 2020.

In 2020, data on Greek participation in the following programmes during the period 2014-2019 were published:

- Europe in a changing world: Inclusive, Innovative and Reflective Societies
- Health, Demographic Change & Wellbeing
- Future Emerging Technologies
- Marie Sklodowska Curie Actions
- Science with and for Society
- European Research Council (ERC)
- Information & Communication Technologies
- Secure, Clean and Efficient Energy

The publication 'EKT as a National Contact Point for Horizon 2020. Report 2014-2019' was also published.





EVT to













POLICY MONITORING & EVALUATION



A key factor for policy-making and implementation of public policies, at national, European and international level is monitoring of policy measures, and whether they satisfy and achieve their goals. Documentation bodies, such as EKT, contribute to evidence-based policy, collecting and analysing relevant information and data, providing also feedback to policy makers and individual user communities (businesses, academia, researchers).

Through EKT's statistical activity, we produce a series of national indicators used by international organisations and bodies for the purposes of European initiatives (e.g. Europe 2020, European Semester, European Research Area) or international initiatives (Sustainable Development Goals). Relevant reports and analyses are also available in scoreboards, such as EU's European Innovation Scoreboard, and Digital Economy and Society Index - DESI.

At the national level, we produce indicators to monitor national and regional Smart Specialisation Strategies, policy measures funded by the Operational Programme 'Competitiveness, Entrepreneurship and Innovation' (EPANEK) and a series of public initiatives that support young scientists and researchers. The indicators reflect the implementation process of public policy, indicating corrective and/or remedial measures to be taken, in order to make it more efficient.
Monitoring Indicators for Smart Specialisation Strategy

Research and Innovation Strategies for Smart Specialisation (RIS3) is part of EU cohesion policy, aspiring to foster development across European regions through economic transformation based on knowledge and innovation. RIS3 implementation requires robust systems and monitoring mechanisms for its constant and dynamic evaluation.

Since 2016, we have been the body producing the indicators for monitoring implementation of the Smart Specialisation Strategy in Greece and its 13 Regions.

Monitoring indicators that refer to national and regional RIS3, and RDI-relevant policy interventions funded by the EPANEK and the Regional Operational Programmes are based on EKT's RDI data. This activity is implemented within the framework of the 'Production of RIS3 indicators, 2016-2023' project funded by the Operational Programme 'Competitiveness, Entrepreneurship and Innovation' (EPANEK) (NSRF 2014-2020).

In 2019, a special section was developed on EKT website, in which the RIS3 monitoring indicators are collected and presented in detailed tables. The indicators are published by Region, on an annual basis and on specified dates.

In addition, we collaborate with the EU Joint Research Centre on specialised issues related to methodologies and new metrics that reflect regional RDI performance.

Monitoring Indicators for Specialised Human Resources

We operate as a monitoring mechanism for public funding interventions that support Specialised Human Resources employed in Higher Education (HEIs) and Research Centres. Since 2017, we have been implementing the 'Evaluation of NSRF Higher Education actions' project that is funded by the Operational Programme 'Human Resources Development, Education and Lifelong Learning 2014-2020'. The aim of the project is to establish a horizontal mechanism capable of collecting data from all institutions that employ specialised human resources, in order to assess on time the particular policy initiatives.

Preparation and publication of relevant reports on beneficiaries and the evaluation of actions allows policy-makers to monitor their implementation. This activity contributes to evidence-based policy, enabling re-design and adjustment of these specific interventions, where necessary. Actions under examination and assessment are the following:

- Support of PhD candidates
- Support of Postdoctoral Research
- Acquisition of Academic Teaching Experience by Young Doctoral Holders
- Support for researchers with an emphasis on young researchers

The indicators presented in our relevant reports provide insight into research outputs of funding projects, participation of beneficiaries in these actions, their contribution to tackling the 'brain drain' phenomenon, their impact on the real economy, as well as proposals for improving them.



NEW STATISTICS



Survey of the professional and geographical mobility of doctorate holders

For the first time in Greece, EKT conducted an extensive census of the professional and geographical mobility of Greek doctoral holders. The study targeted all Greek doctorate holders, regardless of their current country of residence, and was carried out in collaboration with the Regional Development and Policy Research Unit (RDPRU) of the University of Macedonia.

Data record the professional career of Greek doctoral degree holders, inside and outside Greece; thus, this study is the first reliable survey that measures the brain drain phenomenon, in terms of the country's top human research personnel. Data on doctorate holders tracked their careers in the academic field or their employment in the business sector; relevance of professional employment to research; financial earnings, well-being, etc. Particular emphasis was laid on geographical mobility abroad after completing their doctorate studies, as well as on existing ties with Greece, in the case of doctoral graduates working abroad.

The survey was conducted from April to September 2020, with more than 10,000 PhD holders from different countries completing the questionnaire. Publication of the survey results is expected in the first quarter of 2021.

COVID-19 and young researchers

In the spring of 2020, we carried out a large field survey to capture impact of the COVID-19 pandemic on the daily lives of Greek researchers. It was among the first studies in Greece and one of the few to date on this issue internationally. The purpose of this survey was to highlight real conditions under which researchers work in Greece, in order to provide valuable insight for launching targeted policies to support the research community in the COVID-19 era. Aspects that were examined referred to the impact of the pandemic on research activities, problems, challenges and chances that emerged, the outlook of future research activity due to the pandemicconditions, as well as potential for the upgrading of science in public debate.

For the purposes of the survey, an electronic questionnaire was designed and sent to 4.557 researchers participating in European Social Fund actions through the Operational Programme 'Human Resources Development, Education and Lifelong Learning' (NSRF 2014-2020). The researchers were mainly young scientists, who were funded by NSRF to prepare a doctoral dissertation, conduct postdoctoral research, form research teams or acquire academic teaching experience.

Data collection took place between April 15 and May 5, 2020 and the questionnaire was completed by 2,323 people, of which 51.4% were men and 48.6% women. EKT's relevant report was published in May 2020.





The Digital Transformation of Greek enterprises 2016-2018

Digital transformation is a continuous process of change in the operation of businesses. It includes the integration of new technology, new organisational structures and the enhancement of employees' digital skills. Enterprises across Europe are being called upon to take advantage of the opportunities offered by the fourth industrial revolution, in parallel with initiatives to improve their infrastructure and provide their staff with appropriate training.

Alongside the Community Innovation Survey (2016-2018), which took place at the end of 2019 and involved 12,213 enterprises, a parallel, targeted survey was designed, collecting data on strategies and practices directly related to the digital transformation of Greek businesses.

For the first time in Greece, strategies and business practices that are directly related to digital transformation were recorded. Its position in strategic planning was examined, indicating also the main areas of digital transformation for Greek companies. Additionally, data refer to digital methods that enterprises undertook for work organisation, as well as to use of digital practices to access new markets or increase market share.

Research on Technology Transfer Offices in Greece

The characteristics, the administrative structure and the performance of the Technology Transfer Offices in universities and research centres, highlighting the problems they face, have been the subject of a new survey conducted by EKT. It is the first consolidated and methodologically documented statistical survey on these specific structures and services they provide. Measurement of their performance was attempted using data and indicators, as well as a series of qualitative characteristics.

The survey was carried out as part of activities related to the European Institute of Innovation and Technology in the field of Health (EIT Health) from November 2019 to May 2020. Fifteen (15) institutions -active in the area of Medicine and Health Sciences- were examined (nine universities and six research centres).

The results of this survey were published in November 2020. One of the aims of this report was to provide policy makers with information and data, so that they will be able to take decisions which further strengthen these mediation mechanisms, enabling also inter lnkages between basic research and its exploitation for innovative activities. The second round of research will include data from all universities and research centres in the country.



GOALS 2021-2022



- Commit to responsible management and dissemination of statistical data to increase their use by individual user communities, maintaining high level of trust.
- Carry on the production of statistics in ways that ensure quality standards and meet the methodological requirements of the Greek and European Statistical System.
- Respond immediately to the new needs of users, with the production of new statistics in areas of high interest, such as innovation profiles, digital transformation, innovative digital technologies and digital skills in Greek enterprises, the emerging dimensions of gender issues in research and innovation, international mobility and the professional career of skilled human resources.
- Expand collection and use of administrative data from public sources, in order to reduce the burden of completing questionnaires by respondents.
- Improve technological capacity through safe and scalable technology options. Develop advanced data management methods utilising methodologies and techniques, Data science, Machine Learning and Artificial Intelligence
- Raise awareness of individual user communities about the use of statistics and understanding the broader concepts in which they are collected. Particular emphasis will be placed on the wider communication of modern conceptual frameworks for innovation and the clear conceptual definition of emerging technologies.

- Strengthen the operation of EKT's Public Statistical Information Mechanism with the development of an Integrated Information Registry Infrastructure and Platform, which will provide integrated digital data services to serve public administrations and user communities, supporting also policy-making using data.
- Implement actions to set up data registries referring to enterprises, public bodies, research activity, and specialised human resources from the individual statistical (micro) databases that are already available to EKT, as well as from external public data sources.
- Consolidate and interconnect registries and (micro) data (microdata linking), from different, and so far unprocessed sources, in order to exploit the 'hidden' value contained in data, producing new statistics that highlight new patterns, trends and behaviours.
- Develop high levels of skills in human resources and partners by enhancing data analysis capabilities.

INNOVATION AND DIGITAL ECONOMY

At EKT, we support the innovative transformation and improvement of the digital capacity of companies and organisations. At the same time, we are a well-informed consultant and partner in the research community. With extensive experience in European programmes and substantial know-how as a National Contact Point, and making full use of the Enterprise Europe Network with a presence in more than 60 countries, we effectively guide researchers and businesses in identifying funding opportunities, entering into international partnerships and enhancing outward-orientation towards the digital economy.





Innovation.EKT.gr



COMPREHENSIVE ADVISORY SERVICES

We have been an established point of contact and information for funded research projects of the European Commission since 1992. As a National Contact Point for European research and innovation programmes such as Horizon 2020, and as co-ordinator of the Greek node of the Enterprise Europe Network, the largest international business support network, we combine knowledge and expertise from the areas of innovation and entrepreneurship.

Our Innovation Consultants provide comprehensive advisory support for researchers, organisations and enterprises to help them prepare proposals, find partners and successfully participate in European projects. More broadly, their many years of experience as National Contact Points and thorough knowledge of the European research and innovation system enhance their effectiveness in identifying the needs of businesses and researchers and in identifying suitable development opportunities.

Co-operation between National Contact Points and the Enterprise Europe Network is a best practice that the European Commission is actively promoting and has included in its guidelines for the new Horizon Europe Framework Programme. Our team works effectively with other National Contact Points to offer enterprises and research teams guidance on relevant programmes while using the Enterprise Europe Network to identify opportunities for international collaboration.

EKT has made a vital contribution to the collaboration which began in 2019 between the Enterprise Europe Network and the National Contact Points of the Marie Skłodowska-Curie Actions Programme. This collaboration constitutes a big step towards bridging the research and academic sectors and empowering the human resources of innovative companies. Our innovation consultants help research teams, organisations and enterprises to participate in European research and

innovation programmes, to find funding and to support their innovative activities.



The Greek node of the Enterprise Europe Network

Business Networking

Enhancing Innovation

Finding Partners Abroad

Entering New Markets

Organising information and brokerage events

Combined services to promote research, development and innovation

Specialised consulting support



The Greek node of the European Institute for Innovation & Technology Transfer for Health (EIT Health)

Support for Start-ups and Spinoffs in the health sector

Support for students in the field of health and life sciences for the development of innovative ideas and business skills *** * * * * * *

National Contact Point for EU research programmes

Support for research teams and enterprises Finding partners Pre-evaluation of proposals Informative seminars Reports on the participation of Greek research teams

R&D activities in areas related to the development of new innovative services

Digital innovation management New product development

The Enterprise Europe Network

The Enterprise Europe Network is the largest business support network in the world with 3,000 experts from 600 organisations in more than 60 countries. EKT is the co-ordinator-partner of the network's Greek node. 'Enterprise Europe Network - Hellas' supports innovative and outward-oriented enterprises to gain financing and access to new markets, provides personalised innovation management services and enables small and medium-sized enterprises to participate in consultations for future partnerships.



DIGITAL COMPETENCE AND INNOVATION



Digital transformation goes through processes of knowledge and evaluation. Our specialist innovation consultants use certified tools and methodologies to assess the level of digital competence and innovation of enterprises and organisations, so as to advise them on how to make the most of available opportunities.

Our qualified consultants apply a digital competency and innovation assessment process using the Improve methodology. This is based on the Digital Innovation Quotient (DIQ) digital diagnostic tool, developed by the Improve Academy and provided under the Enhancement programme for enterprises interested in high value-added consulting services in the field of digital innovation. Enterprises and organisations with innovative potential and a good level of digital skills are the direct beneficiaries of this service.

EKT Consultants work closely with client companies at all stages of evaluation and advisory support. The success of the programme is directly related to the quality of this collaboration. The relationship of trust that develops between the company and the consultant provides reliable data and contributes to the formation of an effective action plan, prioritising the actions that will lead to the improvement of the innovation management system.

The 'Improve' methodology evaluation service is widely used by the Enterprise Europe Network, which collects data from more than 60 countries. Thousands of enterprises have already been evaluated, allowing reliable competition-related analyses and comparisons.

RESULTS



1,140 people at events attended by EKT



859 requests dealt with in the context of the Enterprise Europe Network



291 individuals contacted potential partners abroad



1,281 requests received by EKT as the National Contact Point for Horizon 2020



472 agencies benefited from EKT's services



259 research proposals were submitted to the EU with the support of EKT



18 brokerage events



14 enterprises were supported in innovation management



25 successful business partnerships

Figures include data up to 30 June 2020



ACTIVITY HIGHLIGHTS





Varvara Vasilaki Innovation consultant, EKT

Stevia Hellas is a Greek co-operative initiative that operates in the context of the co-operative economy and has the largest production of stevia at European level. Prior to 2019, it had received specialised support services from EKT (training seminars and consulting actions) for scale up companies, i.e. companies that had passed from the stage of start-up entrepreneurship to the next stage of development and growth.

In 2019 we supported Stevia in digital innovation management and optimised the benefits using the **Improve** methodology. In addition, under our guidance, it received funding through the EU Getaway for participation in a business mission in Korea in November 2019. There, it received multifaceted support services whose main goal was to establish the company in the market, which included conducting market analysis, scheduling meetings with interested Korean enterprises and organising a promotional campaign in the Korean market.



We support enterprises to enhance their viability by adopting the principles of the circular economy and highlight the benefits of minimising the use of resources in the production process.

In 2019, through our participation in the **BEShared** project, which supported enterprises operating in the sharing economy - a sector of the economy primarily associated with digital technologies and the use of digital platforms - two very important workshops were organised. The first (StartUpNowForum, October 24, 2019) concerned the exchange of experiences and good practices in the sharing economy and the co-operative economy, while the second (Do more with less, November 26, 2019) linked the sharing economy with the circular economy, perhaps for the first time in Greece. The circular economy is a particularly topical issue that is also in line with EU policy on a climate-neutral Europe.



Giorgos Megas Innovation consultant, EKT In 2019, as the **National Contact Point** for Information and Communication Technologies, and a member of the Ideal-ist network, we supported the **ELEGANT** proposal submitted by an international consortium with the participation of a research team of the National Technical University of Athens. The proposal was for a new example of software programming, as well as a new set of methodologies and tools for Big Data and the Internet of Things.

The co-operation with EKT started following a request for support from the NTUA team, from Professor Nectarios Kozyris and Dr. Konstantinos Nikas. As a member of the Greek Committee for Information and Communication Technologies in Horizon 2020, we co-ordinated a special team consisting of the National Contact Points and members of the respective committees of other countries such as Cyprus, England and France, from which organisations participated in the ELEGANT consortium.

The group gathered information that strengthened the position of the proposal and showed the high impact that the project would have on the economy and society. This information was then forwarded in an official letter to the relevant secretariat of the European Commission. Open channels of communication were maintained to strengthen the position of the proposal which was improved, resubmitted and finally approved in 2020 after receiving a very high score (14/15). The project, which will involve various sectors such as public health, safety and the automotive industry, is expected to begin soon.

The consortium is co-ordinated by the Greek company Exus. Apart from the NTUA team, which will co-ordinate the development of software for the flexible routing of Big Data / IoT algorithms, participation from Greece will also include the companies Ubitech and Unisystems.



The EXUS company is active in software development, promoting its products to a varied clientele in more than 25 countries. In the summer of 2019, it planned to submit the proposal **STAMINA** (Demonstration of intelligent decision support for pandemic crisis prediction and management within and across European borders) to Horizon 2020 in response to the H2020 call for proposals under topic SU-DRS05-2019 - 'Demonstration of novel concepts for management of pandemic crises'.

The company turned to EKT to help it find partners. Through the Enterprise Europe Network, we succeeded in putting the company in touch with the Turkish Ministry of Health, which was the missing link for the successful formation of the project consortium. The proposal was ultimately submitted in August 2019 and, as a result of the excellent co-operation between the partners and the holistic approach to the burning issue of pandemic crisis management within Europe, it was approved. EXUS received funding from the European Commission as the project co-ordinator in an international consortium of 38 partners.

"We would not have secured funding without the valuable support of EKT and Enterprise Europe Network - Hellas. Thanks to the co-operation they proposed, we have gained a competitive advantage in introducing cross-border scenarios."

Dr. Angeliki Vlachostergiou, coordinator of STAMINA



Nikos Maniadakis Innovation consultant, EKT



Dr. Cristina Pascual Innovation consultant, EKT

"I am glad that I turned to EKT because, due to the high competition, success is really hidden in the details and I know how decisive its contribution was in the preparation of the proposal".

Dimitrios Christaras Post-Doctoral researcher Using the process of assessing digital capacity and innovation with the **Improve** methodology, we enabled a company active in the production of air conditioning systems for merchant ships to develop a Research & Development department and implement its plans. We first asked the company specific questions, mainly regarding the level of its digital innovation and, then, after extensive discussion and study of its responses, we compiled a performance analysis (benchmarking analysis). This evaluation, combined with our effective communication and collaboration, led to the conclusion that the company had a satisfactory level of effective innovation management. However, the need arose for its further improvement, with the creation of an organised research and development department in order to co-ordinate innovation actions. We also proposed that the patenting of its innovative products be explored in order to improve the terms for the commercialisation of its products.

The company **Repado** is based in Athens and develops software for the medical sector. It has been working with us for a number of years and we support its participation in international business events. It also receives ongoing advisory support for EU programmes that serve its R&D strategy.

In 2019, when it wanted to operate in the Chinese market, significant technical obstacles arose. There was, for example, a problem accessing a suitable server compatible with the software. Solutions also had to be found regarding the country's legal restrictions on data flow. We helped solve these problems through our partnership with the **Enterprise Europe Network** in China. Eventually, a cloud server with the desired specifications was identified. This enabled Repado to enter the Chinese market successfully, offering its customers a solution for the remote management of medical devices.



Dr. Dimitrios Christaras is conducting research at the Athens Eye Hospital, as a fellow of **Marie Skłodowska-Curie Actions**. He is studying human vision, particularly the visual characteristics of the eye and the development of innovative ophthalmic applications. Having previously submitted an MSC Individual Fellowship proposal that was unsuccessful, he contacted us to help him resubmit the proposal. Once the new proposal was selected for funding, we continued to support the researcher for the best possible organisation in the continuance of his work.

The MSC Individual Fellowship is one of the few scholarships for young researchers in the first years after a PhD – a catalyst for their career. In addition to competitive funding, it supports participation in conferences and training programmes while promoting collaboration with other university and research teams in other European countries as well as third countries.



Marina Angelaki Scientific officer responsible for the project EMPOWA

We actively support **women entrepreneurship** with a range of actions and projects. In November 2019, the European project **EMPOWA** was completed with EKT in a co-ordinating role. The project aimed to enhance the participation of women entrepreneurs in the funding offered by the SME Instrument of Horizon 2020.

Training seminars and specialised counselling for women entrepreneurs were organised. The challenges faced by women entrepreneurs were documented and a report was submitted to the EU's Executive Agency for Small and Medium Enterprises (EASME).

The project team developed a methodology for searching for innovative enterprises in which women are leaders. In particular, we were responsible for identifying and mapping high-innovation women entrepreneurship. We also presented the project and the services provided by participating in targeted events, and provided consulting support to women entrepreneurs through the Enterprise Europe Network - Hellas.



Athanasios Charemis Innovation consultant, EKT

The **STARTUP3** project, in which we participate, strengthens the organisation's capacity to support start-ups and small and medium-sized enterprises. The project is funded by Horizon 2020 and is part of the European-wide Startup Europe For Growth & Innovation Radar initiative. In 2020, STARTUP3 organised a competition in which a total of 250 researchers, entrepreneurs, start-ups and small and medium-sized high-tech companies from 36 countries participated with their ideas and teams, from which the top 25 were finally selected. Among them were three Greek enterprises and a Cypriot one.

Along with our project partners, we have undertaken to offer advisory support to the 25 teams that qualified. The members of the collaboration help to map the needs of the companies based on the challenges they aspire to address, analyse the global competition and map their strategic direction. Enterprises are then supported to develop their minimum viable product. The top ten teams will move on from the innovation stage to the final product in order to enter into partnerships with large companies involved in the project.



CALENDAR OF ACTIVITY FOR 2019-2020



During 2019 and the first half of 2020, **EIT Health training programmes** for students in the sectors of digital health and artificial intelligence were supported and promoted. Following our relevant announcement about these programmes, we noted there was a particularly high level of interest from Greece. A good example is the AIRIS programme, in which 130 people from the country participated. In November 2019, the **Innovation Days** event was held at the University of Thessaly for a second year, with groups of students receiving training and competing in the presentation of business ideas in the field of smart health.

As part of the two-day ICT Proposers' Day 2019, held in Helsinki on 19-20 September 2019, together with the Ideal-ist network and Enterprise Europe Network, we co-organised the **Digital Excellence Forum @ ICT Proposers' Day 2019**. We supported 30 participants from Greece (companies and development organisations such as the Athens Development and Tourism Promotion Company and CERTH), contributing to the successful implementation of more than 200 meetings.

Another important event EKT organised was the Horizon 2020 Health Partnering Day 2019, in collaboration with Health NCP Net 2.0. The aim of the event, which took place on 4 July 2019 in Brussels, was to bring the participants (universities, companies, researchers) into contact with potential partners and to learn about and apply for participation in Horizon 2020's 'Health, Demographic Change and Wellbeing' work programme. The event was a great success and, with our contribution, at least 53 organisations established new collaborations. In the Autumn of 2019, in the context of our role as a National Contact Point for Horizon 2020, we organised **information days** and took part in relevant events in various cities (Athens, Thessaloniki, Patras, Volos).The main conference 'Career Opportunities for Researchers / Business Participation in Innovative Training Networks' was held in collaboration with the General Secretariat for Research and Technology and the European Commission, and exceeded all expectations in terms of participation. National and European programmes for doctoral and postdoctoral researchers, enterprises as well as research and academic institutions were presented, with an emphasis on **Marie Skłodowska-Curie Action** (**MSCA**) scholarships.

In the first half of 2020, we participated in an advisory role in the Digital Innovation Initiatives against Coronavirus **#GreeceVsVirus** under the co-ordination of the Ministry of Digital Governance. In the pan-European **Hackathon #EUvsVirus** which followed, Greece had 671 entries while seven Greek teams participated in prominent proposals. The focus was on supporting entrepreneurship through the provision of organised and targeted information as well as services to support digital transformation, digital skills, enhancing innovation, networking and outreach, utilising financial tools and implementing business plans.













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KNOWLEDGE AND PARTNERSHIP BRIDGES



The Bridges initiative seeks to contribute to the development of co-operation between companies, organisations and individuals within and outside the country's borders. In collaboration with the Ministry of Development and Investment, the initiative's main goal during its new period of operation is to co-ordinate the co-operation of the scientific and research community with the business world. The pillars on which the initiative will focus in the near future include the formation of stable strategic co-operation with domestic and international actors and the upgrading of its digital services to meet new needs.



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HIGHLIGHTS

In 2019, improvements were made to the initiative's digital platform. New technical features were developed in order to facilitate the co-operation and communication of its members. For example, area-based customisation, specialisation and other parameters for easier search of collaborations were developed. The goal is to further strengthen the platform in 2021 with new tools and new services. This remodeling of the digital platform with interactive functions such as chat space and automatic profile matching is already underway.

In the same year, a new group was created on Facebook with the aim of providing updates on issues related to collaborations, finding a job, seminars, scholarships and studies. The group has been highly interactive since the start and in a short time has reached more than 3,500 Greeks from 30 countries.

With the launch of the Initiative in 2017, the work of recording corresponding initiatives abroad began. In 2019, communication with these initiatives was intensified, not only for the exchange of knowledge and good practices but also for the organisation of events based on networking.

In January 2020, a two-day networking event was organised with four European initiatives and organisations joining forces to address common issues for their countries: brain drain, mobility and networking. Upon EKT's initiative, representatives of 'Bridges', the private initiative Volvemos from Spain, the International Centre for Migration Policy



Development (an international transnational organization based in Austria) and the Cypriot Foundation for Research and Innovation also participated.

For the first time at European level, participants had a chance to present their work, exchange good practices, see similarities and differences in their issues and actions, share success stories, and highlight the socio-economic implications of the brain drain phenomenon for their countries. Taking part in the discussion were representatives of Greek initiatives that either strengthen the connection of Greeks, promote entrepreneurship or contribute to the repatriation of those wishing to return to the country, including Reload Greece, MindSpace and the Rebrain Greece initiative of the Ministry of Labour.

During the COVID-19 pandemic, good practices were exchanged with the Volvemos initiative on how to address the brain drain issue in relation to repatriation. Information was also gathered from government agencies and various websites about the ways in which Greeks can return from abroad during a pandemic.

In the last months of 2019 and the first half of 2020, targeted information and networking actions were carried out to guide all young Greek researchers and scientists in their professional careers. One such action was the information event organised in November 2019, which gave information on career opportunities, funding and the liaison of researchers with leading research and development organisations as well as opportunities for companies and research organisations to participate in Innovative Training Networks.

In February 2020, Bridges, in collaboration with Google and with the support of Curious Inc., organised the innovative #lamRemarkable women empowerment seminar. The seminar was attended by 30 women from different professional backgrounds who listened, discussed, exchanged personal experiences and practices and learned how to promote and present their achievements in their workplace and beyond.



DIGITAL AND PROFESSIONAL SKILLS



Due to the COVID-19 pandemic, social distancing has changed the way we connect and collaborate. It has also meant visible changes that have already begun to appear in work and in everyday culture. Adapting society and workers to the new data, familiarising them with innovative tools and technologies, is at the heart of a continuing education strategy to keep abreast of labour market developments

According to the study 'The changing nature of work and skills in the digital age', from the European Commission's Joint Research Centre (JRC), the digital transformation of business and the economy entails changes in the type of skills required of employees. These essential skills include both digital skills, using the tools of Information and Communication Technologies (ICT), and non-cognitive/soft skills, which are related to social, emotional and interpersonal relationships.

The acceleration of the process of digital transformation has created new necessities and demands from society and citizens who have mobilised or better understood the emerging changes. Responding to the new conditions, EKT launched a series of informative webinars to enhance the digital skills of employees, with an emphasis on the world of education, which was especially tested during the period when schools remained closed.



2 targeted webinars

1,700 educators

4,000 participants in total With the participation of Greek researchers from the JRC, EKT organised information and discussion webinars on digital skills, focusing on ideas and suggestions for improving the response of society and the state to the digital challenge, as well as the presentation of European digital tools for improving the digital capacity of educational organisations. The webinars attracted the interest of the public, with about 4,000 participants in total.

At the same time, EKT undertook a co-ordinating role in the National Coalition for Digital Skills and Jobs, an initiative of the Ministry of Digital Governance, which aims to work with companies and public and private sector organisations to promote digital skills and address the digital divide in Greek society. EKT also has an active role in shaping the Digital Citizens' Academy established by the Ministry in May 2020.



GOALS 2021-2022



- Evaluate the services provided with a view to improving their quality, integrating new technologies (AI, Machine Learning) as well as their scaling-up and provision at national level.
- Develop a new digital platform that provides specialised information services to enable the use of financial tools and strengthen the digital skills, innovation potential, networking and outreach of all actors of the Greek innovation system.
- Provide services and actions aimed at enhancing the digital transformation of the public and private sector.
- Provide new high value-added services for policymakers, academia, the research community and businesses by exploiting and re-using data collected and aggregated in EKT's systems, while taking the necessary precautions to protect personal data and confidentiality.
- Develop integrated business support actions that aim to utilise the data economy and modern digital technologies (artificial intelligence, high performance computing, data analysis, cybersecurity, etc.).
- Design a 'laboratory' space and services for digitally oriented startups, with the aim of strengthening those that have the capacity for further business development (scale-up) and accelerating the required stages for an idea to be turned into a product or service.
- Implement actions and services for the networking and interconnectivity of the domestic scientific, research and business community with the Greeks of the Diaspora.
- Implement institutional collaborations with the General Secretariat for Research and Innovation and the Attica Region.



- Co-operate with academic and research institutions in order to improve technology transfer and mediation services and promote research results produced by the Greek research community, especially in terms of their further exploitation by enterprises.
- Expand collaborations with strategic domestic and international institutions to effectively achieve the goals.
- Participate in national and European / international initiatives and actions to support digital transformation, the innovation ecosystem and entrepreneurship.

CONTENT AND KNOWLEDGE FOR ALL

Digital transformation in science and culture means modern, user-friendly digital infrastructure and services, open to the communities of knowledge, research and innovation. Following the principles of Open Science, EKT promotes the creative potential of the time, using technology to improve the organisation and dissemination of information and data, to support academic communications and the digital transformation of the publishing process.





eContent.EKT.gr



CULTURAL & SCIENTIFIC CONTENT PLATFORMS



At EKT, we are working towards creating a digital public space for cultural and scientific content produced in Greece. In collaboration with reputable organisations, we are paving the way towards a space for learning and creativity and a meeting place for dialogue between organisations and different user groups.



95 collections 769,984 records 78 content providers

OpenArchives.gr is the largest online platform for search and navigation of reputable scientific content produced by research, scientific and educational bodies. Users can search for doctoral and postgraduate theses, educational materials, scientific journals and monographs, conference proceedings, research publications and files, covering a wide range of subject fields: natural sciences, engineering sciences, social sciences and humanities, medicine and health sciences and agricultural sciences.



In 2020, the content was completely updated, which was a time consuming laborious process. The expansion and technological upgrading of the portal is planned for 2021. In order to improve the classification of material and the content search process, semantic data enrichment of the scientific fields covered is currently underway.

Search Culture.gr

The National Aggregator for Cultural Content, SearchCulture.gr collects cultural content produced by museums, archives, libraries, galleries, ephorates of antiquities, associations and other bodies while respecting the rights of the authors and the policy of each organisation.

We create a user-friendly unified content search environment by applying semantic enrichment and normalisation processes to the metadata of each collection. Our expertise in semantic linking is reflected in the infrastructure for managing and publishing vocabulary Semantics.gr which is a service for publishing open linked data.

In 2019, a new category of semantic enrichment covering the thematic classification of records was retroactively applied to the entire content of SearchCulture.gr. For this purpose, we developed two new bilingual vocabularies: the Greek version of the UNESCO thesaurus and a vocabulary for more specific topics relating to Greek history and culture. The impact on search and navigation of this new type of enrichment has been impressive. Visitors to SearchCulture.gr can now locate items by selecting a theme from a set of 1200 hierarchically organised terms such as 'World War II', 'Architecture', 'Social Exclusion', 'Refugees' etc.



In 2020, two guides relating to the best practice in management of cultural content in the digital space were published. The guides are designed for cultural institutions and technical project partners whose objective is the digitisation and online dissemination of cultural items. They include the necessary openness, interoperability and quality requirements for content management systems and their available metadata and

Guides to good practices and requirements

 Basic interoperability standards for the inclusion of collections in the National Aggregator of Digital Cultural Resources

 Good practices for interoperability and content quality specifications for publishing online digital content



digital files. This not only maximises the visibility, exploitation and reuse of their digital cultural collections but also facilitates their ingestion by both the National Aggregator for Cultural Content SearchCulture.gr and Europeana.

The first of the two guides covers the 'Minimum interoperability requirements for the Greek Cultural Data Aggregator SearchCulture.gr. These standards make it easy for systems, even older ones, to integrate the specifications that will enable their interoperability with the national aggregator and provide collections with new searchability and findability possibilities.

The second and more comprehensive guide 'Quality and interoperability: best practices and specifications for publishing digital cultural content online' covers a wider range of the latest best practices for the digitisation and availability of digital resources online such as unique identifiers, open use licences and digitisation specifications.

Compliance with uniform standards has led, for the first time, to the adoption of a common approach to documentation, interoperability and quality digitisation which is in line with international standards and good practices. Digital items from different collections are connected and link with each other, making it possible to maximise their retrieval and reuse by different user communities in Greece and abroad.



In 2019 and the first half of 2020, a number of digital collections, with 194,128 items in total, were added to SearchCulture.gr. These were the digital collections of the Academy of Athens, the National Foundation for Research and Studies Eleftherios Venizelos, the National Opera, the Gallery of the Averoff Foundation, the Frissiras Museum, the Archives of Contemporary Social History of Music / Music Library Lillian Voudouri and the Department of Fine and Applied Arts of the School of Fine Arts of the Aristotle University of Thessaloniki.

In the spring of 2020, with the outbreak of the pandemic, quality digital content emerged as a key public good for education, entertainment, learning and mental and social well-being. The team behind SearchCulture.gr responded immediately to the challenge by making technical improvements and developing a new high-impact feature, called Thematic Exhibitions. Through curation and the combination of search filters based on semantic metadata enrichment, it was possible to create virtual exhibitions of sets of records with a thematic relationship that tell a story, revealing the range of available collections and helping create new connections and browsing paths for the visitor. Statistics showed a sharp increase in traffic and use of SearchCulture.gr in March and April.





Scientific information services



EKT's Digital Library of Cultural Science and Technology provides access to collections of international and Greek content such as journals, books, databases, doctoral dissertations, and offers users personalized scientific information services. The core user services include: access to international bibliography, citation index and bibliometric indices, ordering texts, articles and publications, use of the computer room and a helpdesk.

In 2019 and the first half of 2020, users had access to 12,401 e-journals, 139,000 e-books and 46 databases. During this reporting period, our personnel responded to more than 2,000 user requests for full text orders, literature and citation indexes.



COVID-19 WEBSITE

2.103

requests served

46 databases

12.401 eiournals

139,000 ebooks

475 open access scientific publications

197 publications by Greek researchers

In March 2020, scientific information services were adapted to the pandemic emergency and continued to be provided electronically. At the same time, a special information website, 'COVID 19: Scientific Information', was created in order to support the knowledge community, highlight valid scientific views and data and counter pervasive irrationality.

Information scientists update the content on a daily basis by selecting open access scientific publications from reputable international journals that answer the critical questions of experts and society about the new coronavirus, the evolution and consequences of the pandemic and various other social, economic and political aspects of the phenomenon.

The website, which remains active, also features publications by Greek researchers, a list of organisations in Greece and abroad that provide scientific information on COVID-19, links to videos and podcasts, scientific data sources, maps and graphs.

Social Sciences and Humanities Index (GRISSH)





31,951 articles 97 journals The GRISSH Index collects, documents, preserves and provides access to authoritative Greek scientific publications in the fields of Social Sciences and the Humanities. The index enables keyword or content search; navigation by topic category, journal title, author, publisher, and other access points; application of combined search filters to narrow the results, display metadata for journals and articles and the complete digital item where it is available with open access.

In June 2020, there were metadata of 31,951 articles from 97 journals in the Social Sciences & Humanities Index.

National Union Catalogue of Scientific Journals (ESKEP)





The National Union Catalogue of Scientific Journals collects the bibliographic data of the scientific journals that Greek libraries have in their collections. ESKEP, which was first compiled in 1983, is a unique tool for searching available print and electronic journals in Greek scientific libraries.

The Interlibrary Loan System operates in tandem with ESKEP, allowing libraries members of the National Network of Scientific & Technology Libraries co-ordinated by EKT, to search for a specific journal from the collection of the network libraries and order copies of articles online. This achieves the multiple use of the national collection of scientific journals and reduces the operating costs of libraries.

To date, 100,861 scientific journals have been incorporated into ESKEP. In 2019 and the first half of 2020, there was a total of 8,083 additions. 146 libraries participate in the National Network of Scientific & Technology Libraries. In 2019 and the first half of 2020, 651 orders were made.

100,861 scientific journals

187 libraries

National Archive of PhD Theses (EADD)





The National Archive of PhDTheses (EADD) is one of the most widely used national digital infrastructures EKT has developed. With full documentation and open data, supporting interoperability with popular search engines, the infrastructure facilitates and enhances access to original scientific research for the Greek and international scientific and research community.

The EADD repository collects in digital form all the doctoral dissertations that have been prepared in Greek universities from 1985 until today, as well as the doctoral dissertations that have been prepared by Greek doctorate holders in foreign universities and have been recognised by the Hellenic National Recognition and Information Centre (DOATAP).

The digital files of the doctoral dissertations are accompanied by digital bibliographic information in the form of metadata. On the website didaktorika.gr users can search and read dissertations using the title, the scientific field, the author, or keywords, while registered users have increased access rights to the archive material.



In 2019 and the first half of 2020, 2.869 new doctoral dissertations were added to EADD, while 22,518 new users were registered. As of June 30, 2020, there were 44,086 online doctoral dissertations available.

ONGOING UPGRADES

Improving user navigation is the prime objective of the upgrades being done on the EADD infrastructure. The metadata format of doctoral dissertations is being upgraded based on international bibliographic standards in order to meet modern needs. The scientific documentation of the dissertation is being further refined with the introduction of a third layer of thematic categorisation based on a vocabulary of terms developed by EKT which is based on international databases of scientific literature such as Scopus and the Web of Science. A semantic vocabulary of authorities for all persons and collective bodies of EADD is being developed. At the same time, an effective enrichment workflow for the de-duplication of names is being set up.

The above upgrades improve user interaction with EADD content and contribute to the interoperability of the archive with third party systems in a meta-search for relevant material from multiple information systems. In addition, the imminent EADD upgrading with state-of-the-art technologies will make the use of content more efficient through APIs. At the same time, new functions are being added to the archive, such as the presentation of usage statistics not only at dissertation but also file level as well as the functionality of showing related content suggestions. These are functions that will improve the user's interaction with the archive and will lead to a more efficient search for relevant material.

DIGITAL TRANSFORMATION OF PUBLISHING ACTIVITY, STRENGTHENING ACADEMIC COMMUNICATION

ePublishing



EKT ePublishing is an integrated public service for the electronic publication of scientific content. The service contributes decisively to the digital transformation of the scientific publishing activity in Greece and increases the available scientific content in the academic community. The great increase in the use of the service, which is reflected in the data of the last two years, confirms its value and importance.

ePublishing covers all publishing needs of the academic community. Primarily intended for academic publishers who want to create a new online publication from scratch, it also serves organisations that want to transfer their scientific publications to a new upgraded online environment. It enables direct promotion and dissemination of scientific work, and ensures the direct access of wider groups of users to the new scientific knowledge produced in Greece.

Overall, we aim to accelerate the digital transformation of publishing; increase available open access scientific publications by improving academic collaboration and communication and upgrade the quality of publications and publishing practices to align with European best practices and policies in scholarly communication, digital research and scientific publications. At the same time, the use of cutting-edge technologies will ensure full interoperability with search engines and will increase the visibility, readability and impact of publications.



To date, EKT ePublishing has supported the publication of 43 electronic journals, nine monographs and seven series of scientific conferences proceedings. From January 2019 until June 30, 2020, seven new scientific journals, three new series of conferences proceedings and four new monographs were published through the service.


In 2019 and the first half of 2020, we carried out preparatory work in order to be able to operate as a horizontal infrastructure for the needs of all reputable publishers in the country in accordance with best international practices.



We participate in two European projects (OPERAS and TRIPLE) which aim to promote and further digitally transform scientific communication in the field of Social Sciences and Humanities. At the heart of TRIPLE is the creation of a digital platform aimed at searching, finding and reusing material (publications, data, etc.) as well as the networking of researchers at a European wide level. The projects include extensive discussion and research on the most appropriate open access business models, best practices in the academic publishing process (services provided to authors, peer reviewing, metrics, digital preservation, etc.), use of open access licences, and other related issues. By participating in these projects, we not only monitor but participate in the developments at European level. The experience gained is transferred to the design and implementation of the services provided by EKT ePublishing so that it is at the forefront of developments and contributes to the creation of a modern and effective field of scientific communication in the country.

OPEN AND ACCESSIBLE LIBRARIES

openABEKT



The advanced openABEKT library automation system is provided as a reciprocal public service through our cloud infrastructure and frees libraries from local and time constraints, as well as from equipment requirement (server, storage, backup, etc.), while giving users the opportunity to directly access the content from anywhere. The service offers the library community and the ecosystem of scientific and cultural institutions the opportunity to organise their catalogues and services for their public, as well as to communicate with each other by exchanging data and services. At the same time, it offers a friendly working environment even for the non-specialised staff of an organisation, while fully meeting the growing needs of the public for modern online services.

OpenABEKT is fully developed using internal resources and integrates our expertise in the documentation, organisation, management and promotion of content. It applies library standards, validation mechanisms and metadata and information representation technologies, which cover the operational needs of each library.



Through the Unified Catalogue, the reader can search for the contents of hundreds of libraries from a single location, while partner libraries can exchange data, drastically reducing the time and cost of cataloguing. The technological infrastructure and the OpenABEKT Unified Catalogue are enhanced with new functions and features, with the aim of continuously upgrading the contents of libraries and producing standardised catalogues. /

Since the spring of 2020 and throughout the period of restrictive measures imposed due to the pandemic, the collaborating libraries used the capabilities of openABEKT in order to operate in working from home conditions and to serve their audience remotely. Employees were able to set up appropriate collaborative flows to enrich catalogue content, and were able to submit requests for support.

In 2019 and the first half of 2020, fifty-four institutions organised and shared all their items in 81 new catalogues, adding 1.500,000 new bibliographic records to openABEKT's unified catalogue.

The future of **Open Science**





EKT plays a key role in the introduction and application of Open Science in Greece. At European level, we closely monitor and contribute to the developments, by offering access to authoritative open access science content, and by informing the scientific community and the general public about the benefits of Open Science. EKT participates as a key partner in EE funded projects aiming to promote Open Science, which contribute to the development of European-wide infrastructures and networks that significantly accelerate the European academic and research environment transition to an open format.

Different user communities associated with the organisation (policy makers, scientific and research community, teachers, information scientists) are kept updated through online events, special reports and the 'Innovation, Research and Digital Economy' journal. In 2020 we also published a White Paper titled 'EKT's role in the Open Science ecosystem', in which one can find the major developments in the international Open Science environment and EKT's future plans for promoting Open Science at a national level.

DEVELOPING THE **"ABOUT LIBRARIES"** PORTAL





The "About Libraries" portal, developed by EKT in collaboration with the scientific team of K. Staikos contains content on the world of libraries from antiquity until today. Based on material gathered by the book historian and collector Kostas Sp. Staikos, it will also collect content from sources within Greece and abroad. The purpose of the collaboration is to document and highlight a unique wealth of information that has been gathered in relation to the architecture, the people, the history and content of libraries, with a friendly and functional search and navigation environment. At the same time, it provides a platform through which to spotlight the history, the people and the collections of Greek libraries.

Our intention is to create an easy-to-use and exciting "navigator" for freely available material for those seeking access to sources of knowledge. A product of continuous bibliographic and pictorial research, the portal is intended for both a specific and a general audience, the global scientific community and the world of research and education. The content covers various aspects of the history of



libraries. The entries are comprehensible, based on processed and documented research data and are accompanied by useful bibliographic references. The texts are supplemented with rich visual material (miniatures of manuscripts, woodcuts, copperplates, lithographs, paintings, representations and photographic illustrations of sculptures and architectural works, etc.).

EKT has undertaken the development of the technological infrastructure for the organisation and distribution of the material. We curate and improve the existing metadata in terms of the structure of descriptive data and its configuration within collections, applying recommended practices for organised and methodologically produced new content in order to integrate modern library science standards and information models. The infrastructure architecture ensures its scalability and the integration of new functions and services that deploy semantic tools.

During the development of the portal, emphasis was placed on issues of presentation, discovery and organisation of content. We achieved unified search for all the content (text and metadata), semantic links between items with the possibility of multilingual display, while a vocabulary was formed using the Information System for Semantic Vocabularies Semantics.gr. The classification system adopted offers several options for navigating the content, which is displayed in thematic categories and rearranged alphabetically, chronologically and geographically to cater for different types of searches.

EKT's collaboration with the scientific team of K. Sp. Staikos began in October 2019, while the first edition of the portal is scheduled for the end of the first quarter of 2021.

Learning from the user communities, from their queries and how they intend to use the material, we will develop improved versions as required with new functionalities, while constantly adding new entries and images. Through international collaborations, the portal aims to gather material that will cover important libraries around the world. We foresee there being close communication between EKT and Greek libraries in particular to collect data the libraries propose as well as use sources already identified by the project support team





GOALS 2021-2022

- Support Greek content providers, archives, museums and libraries in publishing their digital collections online, promoting of interoperability and following international standards and good practices. Publish specifications and guides on good practices for the management and online access to digital cultural and scientific resources
- Expand the network of organisations that contribute their metadata to the National Cultural Aggregator SearchCulture.gr and increase the Greek digital content in the European Digital Library Europeana.
- Increase the number of reputable organisations from which the OpenArchives.gr Scientific Platform draws content. Incorporate the platform into the European Cloud for Open Science (EOSC) and other European infrastructures.
- Technological and operational upgrade of the EKT's national content infrastructures. Publication of guides for the use of digital content services for organizations.
- Technological upgrade of the ePublishing Service and improvement of the services provided for publishers and readers. Increasing the available journals, books and series of conference proceedings through new publishing collaborations.
- Technological upgrade of the National Archive of PhD Theses (EADD) for more efficient use of content, with new functionalities and improved user interaction.
- Launch EKT's Institutional Repository 'Ariadne' with open access to the content and data produced by the organisation: publications, scientific publications, material from events, videos and presentations, data sets, historical archive, etc.

- Upgrade the system for Semantic Vocabularies Semantics.gr to a complete infrastructure for the publication of vocabularies, authorities and thesaurii, and its distribution to institutions as a public service.
- Interoperability of Semantics.gr with the EADD, the Ariadne Repository and the ePublishing service, in order to strengthen the interconnection of the metadata with the use of unified vocabularies and authorities of natural persons and collective organisations.
- Develop a single infrastructure for use by public interest bodies, for the creation, publication and establishment of vocabularies, thesaurii, lists of established names and other semantic resources as Open Linked Data.
- Interact with user communities to evaluate & improve the usability of the online services provided.
- Strengthen EKT's networking and international presence in the area of Open Science and Open Data, with participation in projects and initiatives.

As a beneficiary since April 2020, we have been implementing the project 'National Infrastructure for the Aggregation, Documentation and Dissemination of Digital Content -ensuring interoperability, longitudinal preservation and open access,' of the Operational Programme 'Public Sector Reform' which will be completed in July 2023. As part of the project, all our digital infrastructure and services will be technologically upgraded and aligned operationally with European standards. At the same time, new services and functionalities are being developed for better utilisation and reuse of the available science and cultural content and for the optimal response to the modern needs of the users.

COMMUNICATION AND PERFORMANCE

The role of communication is central to an organisation with an institutional mission of disseminating knowledge in the digital world. The continuous development and improvement of digital infrastructure, the identification of needs of different groups of users, the use of new means for valid information and raising awareness of critical factors of the innovation ecosystem, together constitute a key priority for EKT.

In the Spring of 2020, during the first wave of the pandemic, emphasis was placed on the organised promotion of cultural content by the SearchCulture.gr platform, which was enriched with new functionalities. A dedicated website was created with a continuous flow of posts on the developments of scientific research into the new coronavirus and the disease it causes. Our digital services were redesigned as much as possible to best serve users who would normally visit our premises.

The large increase in website visits and social media engagement underscores our response to a difficult situation. A large increase was also recorded in the use of our ePublishing service, as well as in the subscribers to the monthly e-Newsletter. At the same time, we redesigned our magazine to open a new page in the public debate. The magazine was published with a new design and a new title 'Innovation, Research and Digital Economy' in June 2020 and its main theme highlighted the opening of science to society.

In addition, we significantly strengthened our training and educational activities. In the spring of 2019, a series of lectures on Big Data, the raw material of artificial intelligence, was organised, while in May 2020, a series of webinars was launched with the focus on digital competence in the education sector. Online information and training activities were planned throughout 2020.















organisation of **29** events Participation in **92** events



196 references in printed media1,900 references in online media



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REDESIGN OF OUR MAGAZINE











Infographic of the 18-month period

HUMAN RESOURCES

The driving force of an organisation is human capital and the skillset these employees possess. Human resources enhance the effectiveness, adaptability and collective capacity of the organisation to set and implement goals in a changing environment. EKT has continued along its path, growing during the years of crisis, displaying remarkable resilience and energy. The projects we implement at EKT are at the forefront of technological developments therefore require executives with a wide range of knowledge and skills, experience and commitment. Already employing more than 100 people, we continue to create new jobs for scientists of different specialties.



Teleworking at EKT 16th March-30th June 2020

At the end of the first half of 2020, we employed a total of 104 people, 52 women and 52 men. Of the total number of employees, 43 have a master's degree and 22 hold a doctorate. The largest percentage of employees, over 2/3, are under 50 years old. Computer engineers & scientists, information scientists, statisticians, data analysts, policy analysts, economists, innovation consultants, museologists, archaeologists, communication specialists and content creators, are some of the 18 scientific profiles of staff employed.

Adaptability is the key word for the COVID-19 pandemic period. Our staff showed a high sense of responsibility and remarkable flexibility during the first wave of the pandemic. Following the instructions of the special directives, teleworking and working in a roster system was implemented effectively, while the smooth operation of all services and projects implemented by the organisation was ensured. There were detailed and personalised work objectives on a weekly basis, using IT tools for the effective monitoring and timely implementation of workloads. Technological requirements were met (remote access via VPN to central files, teleconferencing tools, etc.) and computer equipment was provided, thus creating the appropriate conditions for efficient work & co-operation while maintaining high levels of productivity.

At the same time, all necessary measures were taken to safeguard the working environment, in accordance with the recommended preventive measures against COVID-19. Meetings of more than three people were transferred to the digital environment. Employees of vulnerable groups worked from home, while all necessary measures were taken for hygiene and safety in the workplace.

EMPLOYMENT RELATION



EDUCATIONAL LEVEL





CATEGORISATION BY GENDER AND AGE





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