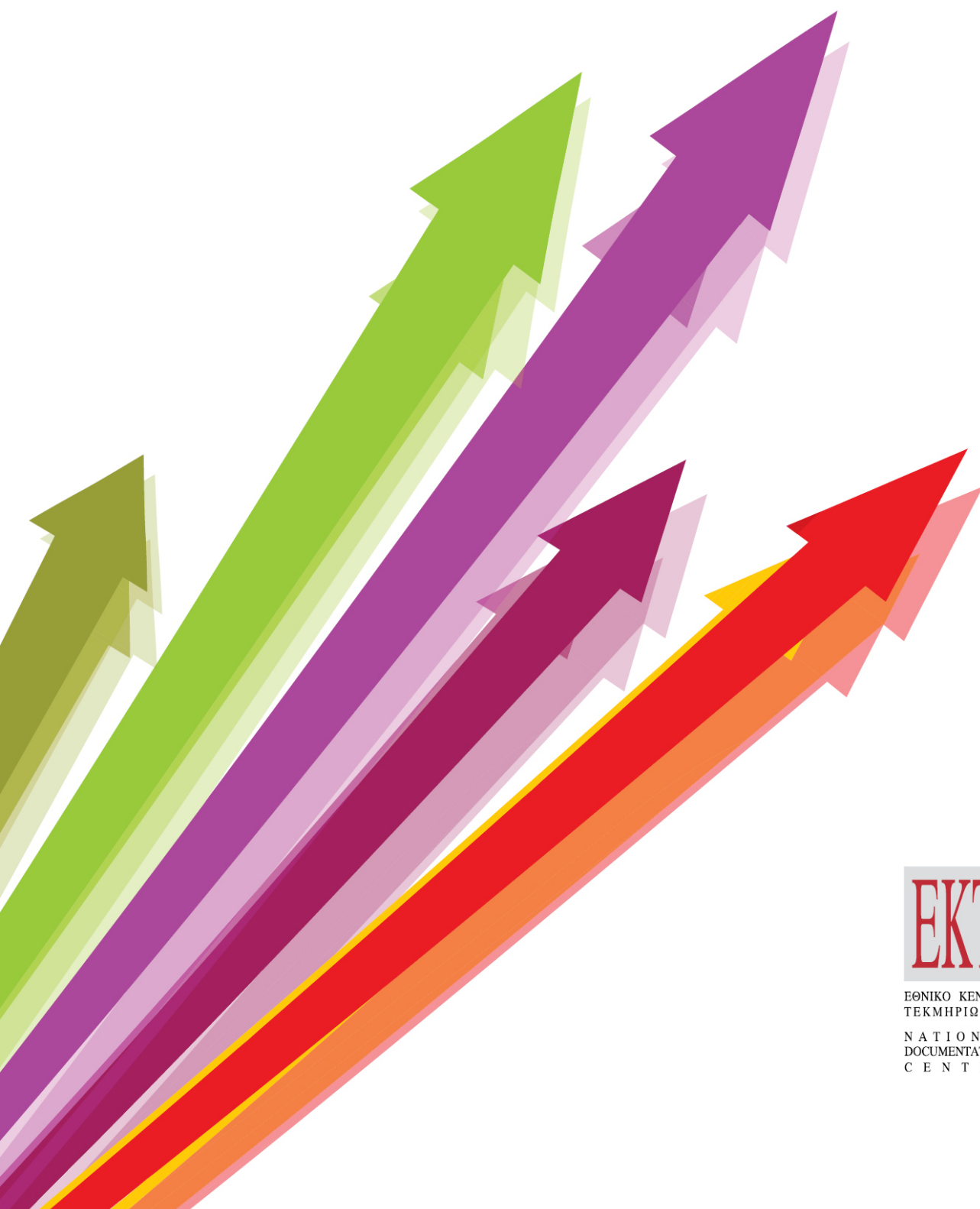


Greek Scientific Publications 1993-2008

A bibliometric analysis of Greek
publications in international scientific journals



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ISBN: 978-960-89499-2-8

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Executive Summary



ΕΘΝΙΚΟ ΚΕΝΤΡΟ
ΤΕΚΜΗΡΙΩΣΗΣ
N A T I O N A L
D O C U M E N T A T I O N
C E N T R E

National Documentation Centre / National Hellenic Research Foundation
Athens 2011

Greek Scientific Publications 1993-2008

A bibliometric analysis of Greek
publications in international scientific journals

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1. Introduction

"Greek Scientific Publications 1993 – 2008: A bibliometric analysis of Greek publications in international scientific journals" is a study by the National Documentation Centre (EKT) aimed at identifying the basic characteristics of the Greek scientific output between 1993-2008 and exploring Greece's position in the international scientific landscape.

The study applied a bibliometric analysis of Greek scientific publications appearing in international journals between 1993-2008. Data for Greek scientific publications in international journals was analyzed systematically for bibliometric indicators such as the number and (%) share of publications, the percent of cited papers, the number and (%) share of citations, the relative citation impact, the field normalised citation score (citation score) and the number and percentile breakdown of top publications belonging to the most cited publications in the world (1%, 5%, 10%, 25% and 50%). Detailed information on the bibliometric indicators examined in the study is given in Annex I.

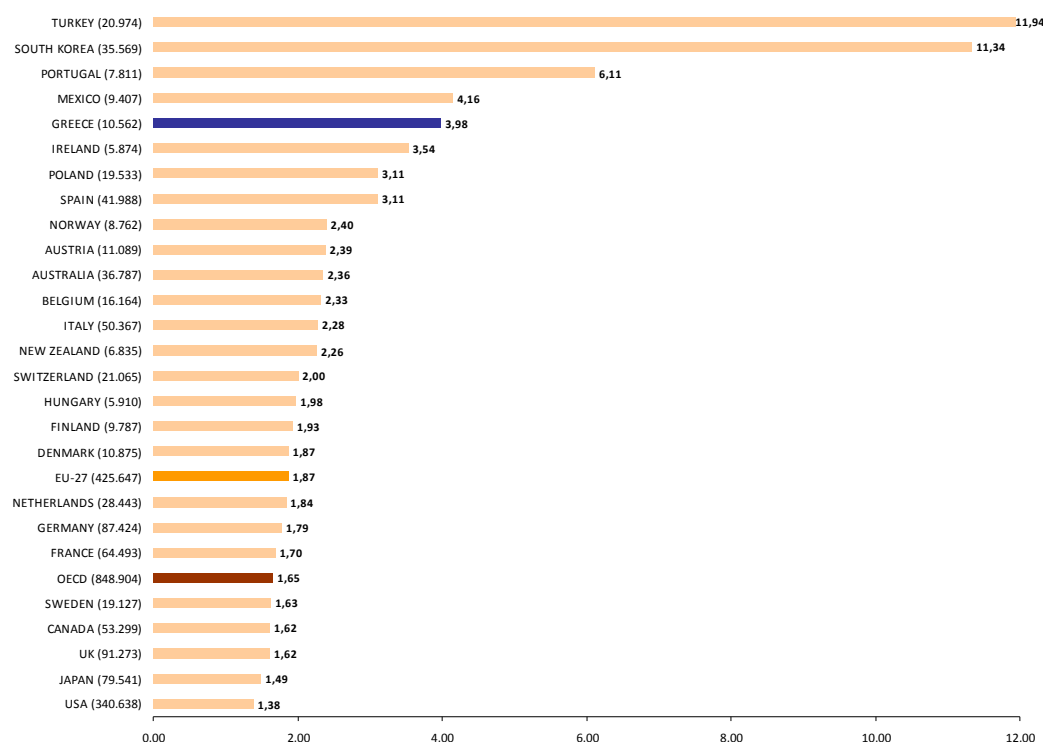
The indicators were calculated at three levels: for the sum of Greek publications, for 11 categories of institutions with similar activities (universities, research institutions, hospitals etc) as well as for 70 individual institutions. Changes over time, the characteristics of the distribution of publications by field of science along with the degree of collaboration developed nationally and internationally were also identified and measured.

Data was drawn from the National Science Indicators [NSI] and the National Citation Report Greece [NCR-Greece] databases of Thomson Reuters for the period between 1993-2008. Statistical analysis and bibliometric calculations for this study were facilitated by software especially developed by the National Documentation Centre to serve the purposes of this study.

In the following lines, we present the main conclusions, findings and figures, summarizing Greek scientific publishing activity, the main categories of publishing institutions, the main research fields in which high levels of publication activity were observed, and scientific collaborations at the national and international level. In-depth information about the institutions under examination and further methodological details are provided in the full, Greek, edition of the study along with detailed graphs and tables.

2. Greece in the international context

Between 1993-2008 Greek scientific publications constantly rise in numbers. As a result, Greece has one of the greatest increase rates in terms of published scientific activity among EU member states and OECD countries (Annex III). More specifically, 10,562 Greek scientific papers were published in 2008 (a figure which has been 4 times higher when compared to that of 1993). In terms of growth rate, the recorded coefficient of variation was up to 3.98 while the EU average was 1.87 and the OECD average was up to 1.65.



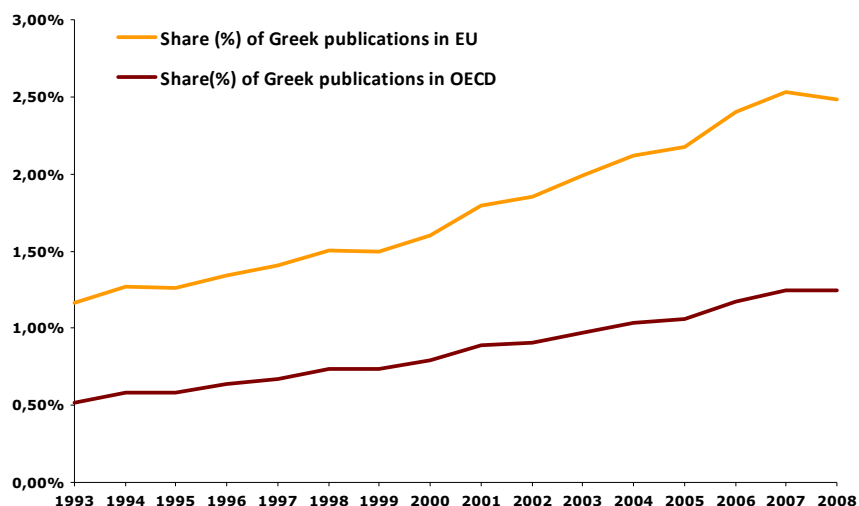
Change in publications numbers in OECD countries from 1993 to 2008. Publication numbers for 2008 given in parentheses. Countries are listed in order of the magnitude of change.

Growth rate: $1 + (\text{publication number in 2008} - \text{publication number in 1993}) / \text{publication number in 1993}$. Growth rate is 1 if the number of publications is the same across the years compared.

Source: Thomson Reuters, NSI 1981-2008

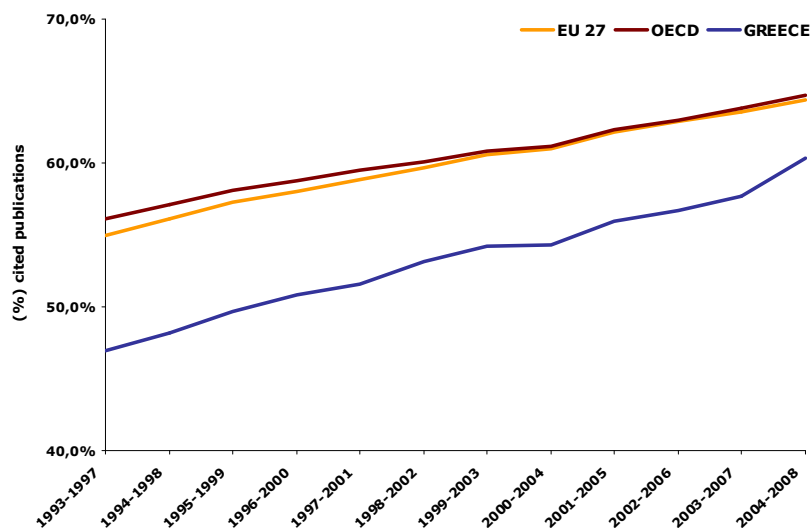
Greece's satisfactory performance producing scientific publications is also reflected in the relation between the number of publications and its population. In 2007, with 820 publications per 1,000,000 residents, Greece was ranked 17th out of the 30 OECD countries, improving its position significantly compared to the year 1993, and even surpassing countries such as Japan, Italy and Spain.

High growth rates have also resulted in increased levels in the country's participation in the overall EU and OECD scientific production. USA maintains a leading position among OECD countries, as it produces more than 40% of the total of scientific publications. United Kingdom, Germany and Japan follow with a share of about 10% of the total production. In 2008, Greece's share among OECD countries was 1.24 % (19th in rank), while in 1993 its share was 0.52% (22nd in rank).

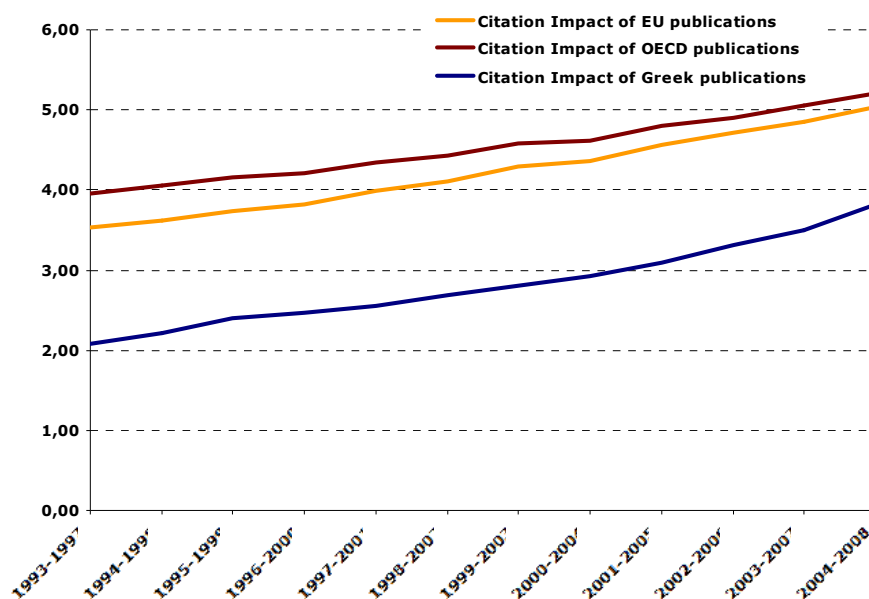


Share (%) of Greek publications in OECD and EU member countries from 1993 to 2008.
 Source: Thomson Reuters, NSI 1981-2008

At the same time, there was an increase in the visibility and influence of Greek publications in the international community. During the period under study there was an increase not only in the number of citations that Greek publications received, but also in the percentage of cited publications. In terms of figures, over the 5 year period 2004-2008, 26,224 or 60.3% out of a total of 43,447 Greek publications received 165,981 citations. In the first 5 years (1993-1997) of the period covered by the study, 7,919 or 46.9% out of a total of 16,869 Greek publications received 35,044 citations.



Percent (%) cited publications for Greece, OECD and EU member countries from 1993 to 2008.
 Source: Thomson Reuters, NSI 1981-2008



Citation impact (average number of citations per publication) for Greece, OECD and EU member countries from 1993 to 2008.

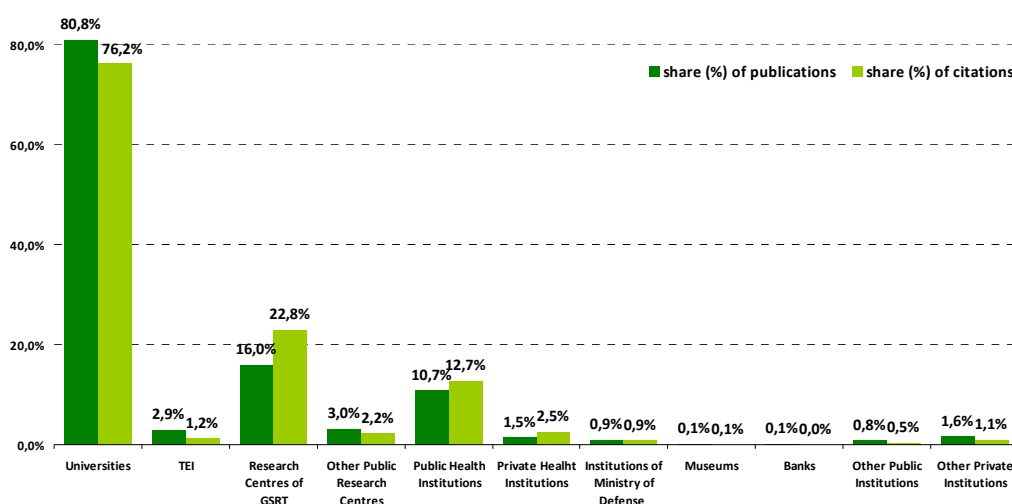
Source: Thomson Reuters, NSI 1981-2008

Despite the constant rise in publishing activity and visibility, the impact of Greek publications in the international community still remains lower when compared to the average impact for publications produced in the EU and OECD; between 2004 and 2008 Greek publications received an average of 3.82 citations per publication whilst within EU the corresponding average reached 5.03 (the Greek relative citation impact in relation to EU was equal to 0.76) and within OECD countries 5.2 (Greek relative citation impact in relation to OECD was equal to 0.73). Despite the growth of the citation impact of Greek publications, the growth rate is not enough to improve Greece's position within the OECD and the country was ranked 22nd throughout the whole period 1993-2008.

Finally, Greece's performance in producing high impact publications still remains low when compared to world average figures. In 2004-2008, the percentile breakdown of the top Greek publications is as low as 0.8%, 4%, 8.3%, 21.8% and 43.7% of the sum Greek of publications. In each case, the figures are lower than those describing the world average (1%, 5%, 10%, 25% and 50%).

3. Key actors in the production of scientific publications

Greek institutions that produce scientific publications were grouped according to their type of activity and their status as public or private in 11 categories: 1.Universities, 2.Technological Educational Institutes, 3.Research Centres supervised by General Secretariat for Research and Technology [GSRT], 4.Other Public Research Centres, 5.Public Health Institutions, 6.Private Health Institutions, 7.Institutions supervised by the Ministry of Defence, 8.Banks, 9.Museums, 10.Other Public Institutions, 11.Other Private Institutions. Details on the institutions included in each category are provided in Annex IV.



Share (%) of publications and share (%) of citations for the 11 categories of institutions between 1993-2008

Source: Thomson Reuters, NCR Greece 1993-2008

Most of the scientific publications are produced by the Universities. Between 1993-2008, a total of 74,530 publications, or 80.8% of all Greek publications, were carried out with the participation of universities. The greatest number of publications are attributed to the National and Kapodistrian University of Athens and the Aristotle University of Thessaloniki, the country's largest Higher Education Institutions. Yet, there is an observable variation in the annual number of publications across universities; in 2008 it ranged from 15 publications published by Panteion University to 2.400 publications published by the National and Kapodistrian University of Athens. Significant variations were also observed with respect to growth rates and publication visibility and impact.

Between 1993 and 2008, the 12 Research Centres supervised by the GSRT produced 14,750 publications and a share of 16% in the Greek publications. In this category, the National Centre of Scientific Research "Demokritos" [NCSR Demokritos] and the Foundation for Research and Technology – Hellas [FORTH]

can be singled out with approximately 450 publications each. Four research centres follow with a publication output of about 100 articles for the year 2008: the National Hellenic Research Foundation [NHRF] with 133 publications, the Hellenic Centre for Marine Research [HCMR] with 110 publications, the National Observatory of Athens [NOA] with 92 publications and the Centre for Research and Technology Hellas [CERTH] with 90 publications. The number of publications originating from the remaining Research Centres is significantly smaller.

The majority of publications by the GRST Research Centres have a high level of recognition in and impact on the international scientific community.

Public Health Institutions produced 9,910 publications during the period under study, achieving a 10.7% share and taking the 3rd place in Greek publications output. Public hospitals produced most of the publications in this category. Ippokratio Regional General Hospital of Athens [Hippocrates] and the Evaggelismos Hospital of Athens [Evaggelismos] stand out with 173 and 113 publications in 2008, respectively.

The study also monitored the publishing activity of seven research institutes supervised by different ministries, all grouped under the umbrella-category "Other Public Research Centres". Between 1993 and 2008 these institutions produced 2,749 scientific publications, corresponding to a 3% share of the total production. Most of these publications originated from the National Agricultural Research Foundation [NAGREF], which produced 145 publications in 2008, and the Academy of Athens with 122 publications in the same year.

Technological Educational Institutes (TEIs) produced 2,698 publications, having a 2.9% share in the production of Greek publications. In this category, in 2008, the TEIs in Athens, Thessaloniki and Crete stand out with over 80 publications each. Most TEIs produced a low and often unstable number of publications.

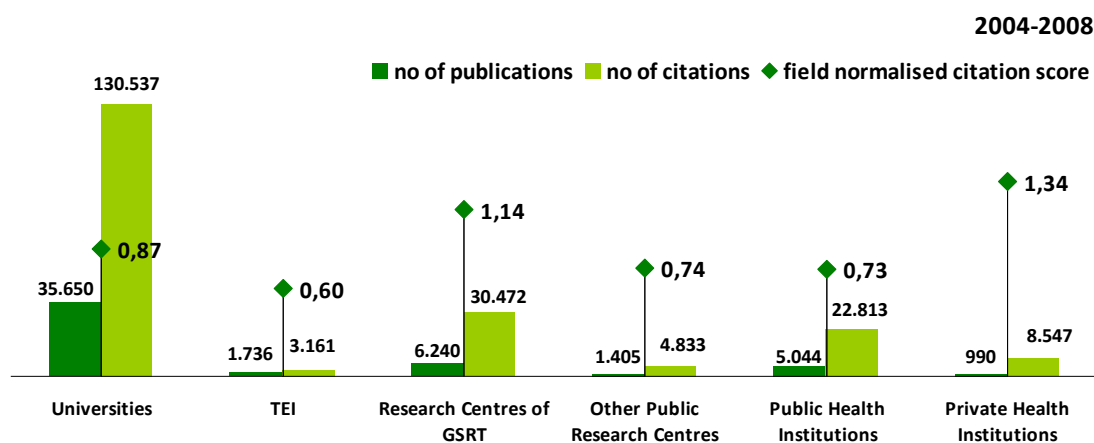
Finally, Private Health Institutions produced 1,422 scientific publications during the period 1993-2008. Institutions included in this category began their activities in the area of health services mostly in the years between 2004-2008. They directly achieved a high growth rate in the number of publications produced, as well as high values in the bibliometric indicators estimated for their publishing activity. The Henry Dunant hospital and the Alfa Institute of Biomedical Sciences [AIBS] stand out with 82 and 77 publications, respectively, in 2008.

The five remaining categories of institutions (Institutions supervised by the Ministry of Defence, Banks, Museums, Other Public Institutions and Other Private Institutions) had a much smaller share, below 1%, in the total number of Greek publications.

In total, in the 5-year period 2004-2008:

- The highest growth rate in the number of publications was traced in TEIs (growth rate of 2.33) and in Private Health Institutions (growth rate of 2.24)
- The highest percent of cited publications was traced in the publications of Private Health Institutions [69.4%] and the GSRT Research Centres [68.4 %]

- Publications produced by Private Health Institutions and the GSRT Research Centres display a higher impact than the world average with field normalized citation scores at the level of 1.34 and 1.14, respectively
- The highest percentile breakdown of top publications was traced for the GSRT Research Centres, exceeding the world average in the percentile levels 1%, 5%, 10% and 25%. Publications produced by Private Health Institutions had also a percentile breakdown of top publications higher than the world average in the levels of 1%, 5% and 10% and those published by the Museums in the level 1%.



Number of publications, number of citations and field normalized citation scores for the 6 major categories of institutions for the 5year period 2004-2008.

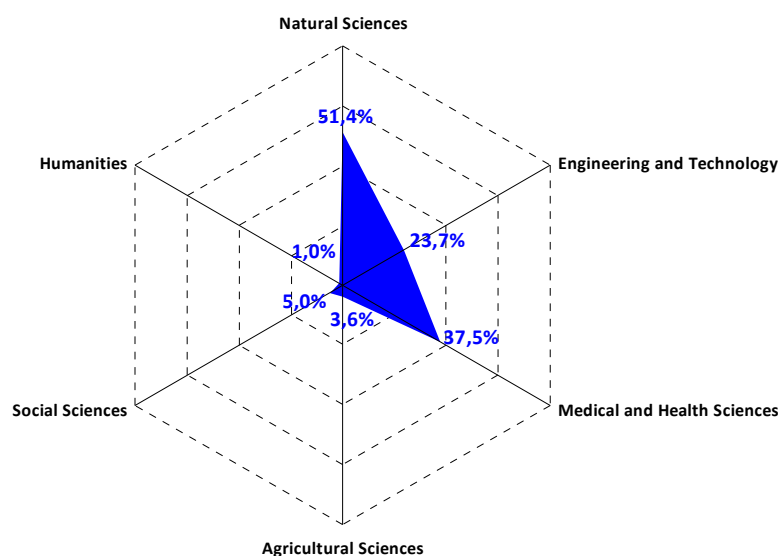
The Field Normalized Citation Score was calculated using the software developed by EKT that permitted normalization of the citation values on an individual article level

Source: Thomson Reuters, NCR Greece 1993-2008

4. Key scientific fields of Greek publications

With an aim to identify the key scientific fields in which Greek research activity takes place, Greek publications were classified into the six major scientific fields and their 42 subcategories defined in the Revised Field of Science and Technology Classification in the Frascati manual / OECD (Annex II).

The six major fields are: 1."Natural Sciences", 2."Engineering & Technology", 3."Medical & Health Sciences, 4."Agricultural Sciences", 5."Social Sciences" and 6."Humanities". The classification of publications and the calculation of bibliometric indicators was based on data from the last 5-year period, (2004-2008), in order to record emerging scientific areas attracting significant research interest. However, the evolution of each scientific field throughout the period 1993-2008 is also briefly discussed.



Distribution of Greek publications in the 6 major fields of science for the 5-year period 2004-2008

Source: Thomson Reuters, NCR Greece 1993-2008

Analysis showed that the field "Natural Sciences" is the one Greek researchers are mostly interested in. Throughout the period 1993-2008, the majority of Greek publications (51.4% for the last 5-year period 2004-2008) fall under the scientific field "Natural Sciences"; At the same time, however, the interest in the field is declining, as attested by the number of publications. Despite this fact, there was a remarkable increase in the number of publications in the following subcategories within the field: "Computer and Information Sciences", "Earth and related Environmental Sciences" and "Biological Sciences". Publications in the first two subcategories displayed growth rates higher than the Greek average.

The field "Natural Sciences" achieved shares of more than 50% in most institution categories and publications in this field showed the highest impact among the six major scientific fields.

22,294 publications were produced in the field "Natural Sciences" during the years 2004-2008. They received 86,352 citations, and a citation score of 0.93, which approaches the global average of 1.00. The highest citation score [1.36] was traced for publications in the subcategory "Polymer Sciences". Notably, the publications produced by the Private Health Institutions and the GSRT Research Centres had a relative impact higher than the world average [citation scores 1.28 and 1.12, respectively].

A significant number of publications was also generated in the scientific field "Medical & Health Sciences". Its growth rate was higher than the Greek average and its share constantly increased during the period 1993-2008, accounting for 37.5% of all Greek publications in the last 5-year period. A particular increase was observed in the number of publications in the field's subcategory "Health Sciences".

Several institution categories displayed publishing activity in the field "Medical & Health Sciences". Universities, including university hospitals, produced the highest number of publications. Notably, the percentage of university publications in this field displayed a continuous increase and reached the level of 36.2% over the 5-year period 2004-2008. As it was expected, Public and Private Health Institutions displayed a strong presence with over 90% of their publications being related to the field of "Medical & Health Sciences". Finally, 12.4% of the publications attributed to the GRST Research Centres in the period 2004-2008 fall under this field.

During the 5-year period 2004-2008, 16,281 publications related to this field received 77,417 citations and achieved a citation score of 0.86. The highest value [1.38] was traced for the subcategory "General & Internal Medicine". Publications attributed to Private Health Institutions and the GSRT Research Centres displayed a citation score higher than the world average [1.36 and 1.26, respectively].

The scientific field "Engineering & Technology" had a share of 23.7% of the total number of Greek publications during the last 5-year period. Over the period 1993-2008, the number of publications in this field approached the average growth rate of Greek publications and their share remained relatively stable. This stability reflects only a general picture, as significant changes can be observed among the various subcategories of the field. 'Nano-technology' is the subcategory with the most remarkable growth. Increasing trends are also evident in the subcategories 'Medical Engineering,' 'Civil Engineering', 'Environmental Engineering', 'Industrial Biotechnology' and 'Materials Engineering'.

A significant proportion of publications attributed to TEIs [42.6%] and the GSRT Research Centres [30.9%] fall under the scientific field "Engineering & Technology". These percentages displayed a rising tendency throughout the period. In addition, the categories of Other Public and Private Institutions have a significant activity in this field.

Over the last 5 year period, 10,282 publications were produced in this field. They received 24,626 citations, a figure which corresponds to a 0.87 citation score,

without any particular category of institutions surpassing the world average. It is worth noting, however, that publications in the field's subcategory 'materials science, composites' achieved the highest citation score [1.59] for all Greek publications in all scientific fields.

The number of Greek publications in the area "Agricultural Sciences", "Social Sciences", and "Humanities" was significantly smaller.

In the last 5-year period and in the scientific field "Social Sciences", there were 2,160 publications [a share of 5.0 % of all Greek publications], most of which came from universities. With a citation score of 1.27, publications from the field subcategory 'anthropology' had the highest impact.

In the same 5-year period, there were 1,576 publications [a share of 3.6% of the total number of Greek publications] in the scientific field "Agricultural Sciences", attributed to almost all categories of institutions. The greatest share of publications in the field was traced for the institution category "Other Public Institutions" –which includes the National Agricultural Research Foundation [NAGREF]-, while the highest citation score [1.10] was observed in the category "GSRT Research Centres".

The scientific field "Humanities" displayed a very low number of publications, and therefore a small share of publications throughout the period 1993-2008. Over the last 5-year period, 414 publications made up 1% of all Greek publications. These publications were mainly produced by universities.

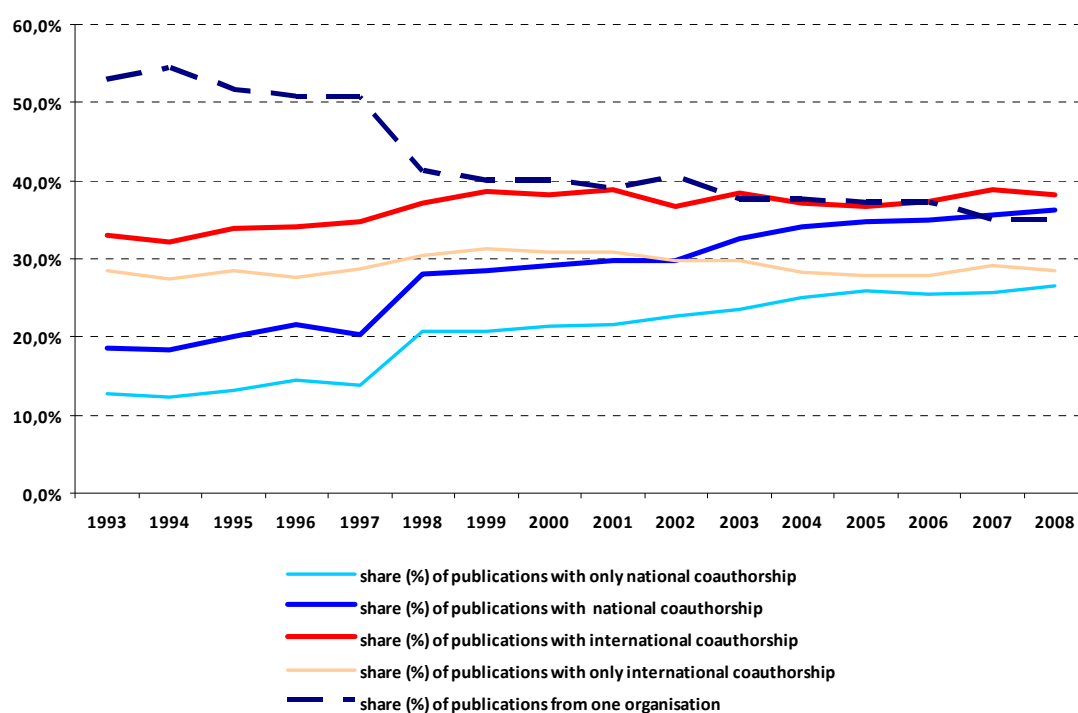
Natural Sciences		Medical & Health Sciences	
polymer science	1,36	medicine, general & internal	1,38
genetics & heredity	1,26	public, environmental & occupational health	1,31
physics, multidisciplinary	1,20	allergy	1,23
optics	1,17	critical care medicine	1,21
physics, fluids & plasmas	1,17	rheumatology	1,20
crystallography	1,17	infectious diseases	1,09
physics, particles & fields	1,16	chemistry, medicinal	1,03
mathematics, applied	1,13	geriatrics & gerontology	1,01
physics, mathematical	1,12	immunology	1,01
virology	1,09		
chemistry, physical	1,07	Agricultural Sciences	
physics, nuclear	1,07	agricultural engineering	1,29
meteorology & atmospheric sciences	1,07	agricultural economics & policy	1,24
reproductive biology	1,06	fisheries	1,04
chemistry, inorganic & nuclear	1,05		
electrochemistry	1,03	Social Sciences	
		anthropology	1,27
		education, special	1,11
		Humanities	
		archaeology	1,08

Scientific subfields of Greek publications with the highest citation scores for the 5year period 2004-2008

5. National and international collaboration

The degree of collaboration and networking of the Greek research community at the national or international level is well reflected in the number of co-authored scientific publications.

Between 1993 and 2008, Greek co-authored scientific publications constantly increased. According to the data collected for this period, publications produced exclusively by a single Greek organization declined in number, while those produced as a result of collaboration at the national or international level increased significantly. Indicatively, in 1993, 47.2% of the publications were products of scientific collaborations while in 2008, the same indicator rises to 65%. The greatest increase was observed in collaborations between Greek institutions.



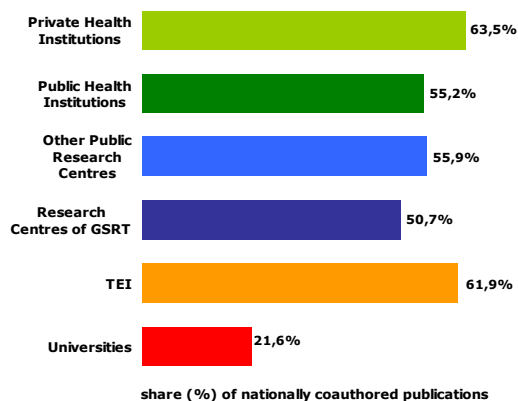
National and international coauthorship of Greek publications during the period 1993-2008
Source: Thomson Reuters, NCR Greece 1993-2008

More specifically, during the period 1993-2008, 28,224 publications were the result of collaborations between two or more Greek institutions. In 2008, 36.3% of all Greek publications were the result of coauthorship at the national level. In most institution categories, co-publications with other domestic institutions made up for over 50% of their publications. This number is particularly high when it comes to Other Public Institutions, TEIs, Private Health Institutions and Museums. It should be noted that Universities have the lowest share of co-publications with

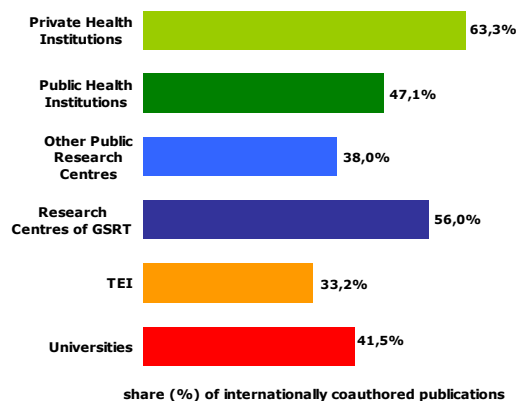
other Greek institutions (21% of their publications), despite being the main scientific partner for all other institution categories.

Regarding collaborations at the international level during the period 1993-2008, 34,195 Greek publications were co-authored with researchers from other countries. In 2008, international co-authorship made up to 38.1% of all Greek publications. The countries with which Greece had the greatest number of collaborations were the USA, the UK, Germany, France and Italy. These countries remained the main collaborators throughout the period 1993-2008. In most categories, the share of co-authored publications at the international level was lower than that at the national level. In contrast, more than 50% of the publications produced by the Ministry of Defense, Private Health Bodies and the GSRT Research Centres were co-authored at the international level.

National cooperation 1993-2008



International cooperation 1993-2008



National and International coauthorship in the 6 major categories of institutions during 1993-2008.

Source: Thomson Reuters, NCR Greece 1993-2008

6. Key indicators for scientific publications across institutions, 2004 – 2008

This section briefly presents the key characteristics and bibliometric indicators for the 11 institution categories, as well as the institutions that achieved the highest values. The data refers to the last 5-year period of this study, 2004-2008.

Universities

(%) share of publications and citations: The majority of publications in this category are attributed to the National and Kapodistrian University with a share of 27.5% in publications and 33.2% in citations. This was followed by the Aristotle University of Thessaloniki, with a 21.2% share in publications and a 19.5% share in citations.

Publication growth rate: Although still producing a low number of publications, the greatest growth rate was observed in the newer Universities of Western Macedonia and Peloponnese. The Universities of Thessaly and Harokopio, not only released a significant number of publications but they also displayed a notable growth rate.

Percent cited publications: The percentages for the Universities of Crete, Ioannina and Harokopio (68.6%, 66.6% and 64.4%, respectively) surpassed the national average of 60.3%.

Impact of publications relative to world (field normalized citation score): Publications from the University of Crete, the University of Ioannina, the Technical University of Crete and Harokopio, achieved indicators either of the same level or surpassing the average world impact (values of 1.12, 1.05, 1.00 and 0.97, respectively)

Top X% publications (percentile breakdown): The University of Crete was above the world average in the percentile levels 1%, 5%, 10% and 25%; the University of Ioannina and the Technical University of Crete in the levels 1%, 5% and 10% and Harokopio University of Athens in the level 25%.

Major scientific fields: "Natural Sciences" was the scientific field with most university publications. Despite a noticeable decline, the output of the last five years was over 50% in 13 universities. Publications with the highest impact in this particular field are attributed to the University of Crete with a citation score of 1.30.

"Engineering and Technology" was also a well represented field for the majority of universities. In this field, the impact of publications from the University of Ioannina, the University of Crete, the Technical University of Crete (all with citation scores 1.05) and the Agricultural University of Athens (citation score 1.01) was almost equal to the world average.

University publications in the field "Medical and Health Sciences" displayed a continuous increase. The most active universities in the field were: Harokopio University [72.1% of its publications falling in the field], the National and Kapodistrian University of Athens [61.6%], Demokritos University of Thrace

[51.2%] and the Universities of Thessaly [48.4%], Crete [42%] and Ioannina [41.6%]. The publications from the University of Ioannina and Harokopio University produced citation scores above the world average -1.19 and 1.06, respectively-.

The field "Agricultural Sciences" had a smaller share in the university publications. Shares of above 10% were only observed in the Agricultural University of Athens and the University of Thessaly. The highest citation score in the field (1.07) is achieved by the relatively small number of publications produced by the University of Patras.

In "Social Sciences", three universities are active [Panteion University, the Athens University of Economics and Business and the University of Macedonia] with over 50% of their publications related to the field. However, the citation scores remained below the world average. The number and share of publications in the field "Humanities" was generally very low across all universities.

International collaboration: The degree of international collaboration differed significantly among universities. For the period 2004-2008, the average percentage of internationally coauthored publications was 41.5%. However, percentages of over 50% were observed for two universities, University of Crete [52.1%] and the National and Kapodistrian University of Athens [51.1%].

Technological Educational Institutes

(%) share of publications and citations: Among all TEIs in the country, the TEIs of Athens, Crete and Thessaloniki produced the greatest number of publications and citations. During the last 5-year period of the study, the TEI of Athens participated in 21.4% of the publications and received 23.6% of the citations in the category; the TEI of Crete had shares of 17.1% of the publications and 26.4% of the citations and the TEI of Thessaloniki had shares of 15.1% and 12%.

Publication growth rate: Over the last 5-year period, numerous TEIs exhibited an increasing growth rate in publication counts which was noticeably higher than the Greek average. However, with the exception of the TEI of Crete, their annual output of scientific publications remained relatively low.

Percent cited publications: The majority of TEIs displayed a percentage of cited publications which was lower than the Greek average. The TEIs of Epirus, Crete, Larissa, Athens, Western Macedonia and Kalamata displayed more than 50% of cited publications during 2004-2008.

Major Scientific fields: There were two main scientific fields favored by publications in the TEIs: "Natural Sciences" and "Engineering & Technology". In "Natural Sciences", the publications by the TEIs of Larissa and Crete achieved citation scores higher than the world average -1.26 and 1.04, respectively-. In 'Engineering & Technology', the TEIs of Crete and Athens displayed the highest citation scores - 0.67 and 0.66, respectively-.

The number of scientific publications in the field "Medical and Health Sciences" was much lower; the highest output came from the TEI of Athens with 91

publications and a citation score of 0.61. As for the remaining scientific fields, there were too few publications to perform an analysis.

International collaboration: During the last five years of the study, the degree of international collaboration was generally low in the TEI category with an average share of 33.2%. The TEI of Crete had the greatest share of internationally coauthored publications [45.9%].

GSRT Research Centres

(%) share of publications and citations: The majority of publications in this category were produced by the Foundation for Research and Technology – Hellas [FORTH] and the National Centre of Scientific Research Demokritos [NCSR DEMOKRITOS]. FORTH participated in 33.3% of the publications and received 42% of the citations. NCSR DEMOKRITOS participated in 31.5% of the publications and received 28.5% of the citations.

Publication growth rate: During the period 2004-2008 the Greek Atomic Energy Commission [GAEC] displayed a noticeable increase in publications activity. The following research centres also exhibited a higher growth rate than the category's average: the Biomedical Sciences Research Centre "Alexander Fleming" [BSRC Fleming], the Athena–Research and Innovation Centre in Information Communication and Knowledge Technologies [ATHENA], the National Hellenic Research Foundation [NHRF], the Hellenic Centre for Marine Research [HCMR], the Centre for Research and Technology Hellas [CERTH], and the Hellenic Pasteur Institute [HPI].

Percent cited publications: For most research centres this figure was higher than the Greek average. During the last 5-year period, the percentage of cited publications was above 70% for HPI, NHRF, Fleming, FORTH and the National Observatory of Athens [NOA].

Impact of publications relative to world (field normalized citation score): Overall, the citation scores for the GSRT Research Centres were high, approaching or surpassing the world average. The highest scores were recorded for the publications by FORTH [1.44], followed by those by Fleming [1.26], GAEC [1.08], NCSR DEMOKRITOS [1.03] and NHRF [1.01].

Top X% publications (percentile breakdown): Publications in this category are placed particularly well when compared with the world top 1%,5%,10%, 25% and 50% publications. Fleming and FORTH displayed performances greater than the world average in all percentile levels; NCSR DEMOKRITOS in the levels 5%, 10% and 25%, GAEC and CERTH in the levels 5% and 10%, ATHENA in the level 5% and HCMR in the level 1%.

Major scientific fields: The main scientific field of publications produced by the GSRT Research Centres was "Natural Sciences", with percentages over 80% in quite a few cases. The highest shares of the field were observed in the publications from HCMR, FORTH, NCSR DEMOKRITOS, NOA and NHRF. In this field, there were three centres with citation scores higher than the world average: FORTH [1.42], Fleming [1.05] and NCSR DEMOKRITOS [1.02].

"Engineering & Technology" was also well represented in this category and most of the GSRT Research Centres produced more than 20% of their publications in the field. Citation scores above the world average are achieved in the publications released by the NOA [1.34], FORTH [1.06] and CERTH [1.04].

"Medical and Health Sciences" was the main field of interest for HPI [60.3%]. High percentages were also observed for Fleming [49.5%], NHRF [24.8%], FORTH [10%] and NCSR DEMOKRITOS [9.1%]. The citation scores of all the research centres active in the field [FORTH, Fleming, HPI, NHRF and NCSR DEMOKRITOS] were greater than the world average. The highest indicator -1.95- was traced with regard to publications produced by FORTH.

The field "Agricultural Sciences" was well represented only in HCMR publications. However, the 129 publications produced by HCMR over the last 5-year period presented a high citation score of 1.27, well above world average.

The "Social Sciences" field was the principal scientific field only for publications from the National Centre for Social Research [NCSR], while for ATHENA it was the third. It should be noted, however, that the number of publications released by both centres was low.

Finally, the GSRT Research Centres generally displayed a low output in the "Humanities" field; ATHENA and NHRF demonstrate the highest percentages.

International collaboration: GSRT Research Centres present a high degree of international coauthorship, which in most cases is above 50% of the total number of their publications. Fleming stands out with a percentage of internationally coauthored publications of 73.3%.

Other Public Research Centres

The Academy of Athens stands out in this category as its output showed a stable high level of visibility with 60% cited publications, percentile breakdown of top publications above world average in the levels 1% and 25% and citation scores equal to the world average [0.96]. "Natural Sciences" was the main scientific field of interest, followed by "Medical and Health Sciences", where a relative citation score of 1.06 was traced.

The Institute of Geology and Mineral Exploration [IGME], despite its relatively low number of publications, presented a higher performance than the world average in percentile levels 5%, 10% and 25%.

The Benaki Phytopathological Institute [BPI] also showed a higher performance than the world average in the percentile level 5%.

Finally, the few publications issued by the Institute of Engineering Seismology and Earthquake Engineering [ITSAK], were cited more than the Greek average [over 60%] and achieved a citation score of 0.81.

Public Health Institutions

N.B.: In this category bibliometric indicators were determined for the top 10 public hospitals.

(%) share of publications and citations: The "Ippokratio" Regional General Hospital of Athens [Hippocrates] occupies the largest share of publications [10.6%] and citations [9.5%] in the category.

Publication growth rate: the greatest growth rates were observed in publications issued by the G.Papanikolaou General Hospital of Thessaloniki [G. Papanikolaou], the Hippocrates Hospital and the Metaxa Cancer Hospital of Piraeus [Metaxa].

Percent cited publications: most of the hospitals achieved percentages above Greek average.

Top X% publications (percentile breakdown): The G. Papanikolaou Hospital's performance indicators were greater than the world average in the percentile levels 1%, 5% and 10%. It was followed by the Korgialenio-Benaki Hospital of Athens [Korgialenio] and the General Hospital of Athens Laiko [Laiko] in the 1% level.

Major Scientific fields: The overwhelming majority of scientific publications from public hospitals, as it was expected, fall under the field of "Medical and Health Sciences". G. Papanikolaou achieved a relative citation score of 1.26.

International collaboration: The category of Public Health Bodies demonstrated a degree of international collaboration equal to 47.1% of their publications. For all the hospitals examined, the percentage of internationally co-authored publications accounted for more than 40%. Tzaneio General Hospital of Piraeus [Tzaneio] was the institution with the highest number of internationally coauthored publications in this institutional category.

Private Health Institutions

(%) share of publications and citations: The Henry Dunant Hospital [Henry Dunant] leads this category with a share of 36.5% of publications and 51% of citations.

Publication growth rate: Generally, over the last 5-year period, the private health bodies demonstrated a high growth rate in the number of publications, especially the Alfa Institute of Biomedical Sciences [AIBS].

Percentage of cited publications: A primary characteristic of this category is the high level of recognition -higher than the Greek average- that the private health bodies received. Particularly noticeable was the Henry Dunant hospital with 78.1% cited publications.

Top X% publications (percentile breakdown): AIBS surpassed the world average in the percentile levels 5%, 10%, 25% and 50%, the Henry Dunant hospital in the levels 1%,5%,10% and 25% and St. Luke's Hospital [St. Luke] in the levels 1% and 5%.

Major scientific fields: More than 90% of scientific publications from the private health institutions was related to the field "Medical and Health Sciences". Publications produced by the Henry Dunant hospital had the greatest impact with a relative citation score of 1.86, followed by those from AIBS with a score of 1.30. The small number of publications from St. Luke is also well placed with a citation score of 1.00.

There was also an output in the field of "Natural Sciences" with publications produced mainly by the Henry Dunant hospital and AIBS. It is to be noted that the 75 papers published by AIBS in the last 5 years achieved a relative citation score of 1.59.

International collaboration: In the category Private "Health Institutions", 63.3% of papers were published as a result of international collaboration. For all Private Health Institutions examined, over 50% of publications were coauthored at an international level. AIBS had the highest percentage 98.7% of international collaborations - also the highest figure for all Greek organizations-.

ANNEX I: Bibliometric Indicators Used

Indicator	Description	Usage
Number of publications	The number of scientific publications produced by the analysed unit (country, institution etc) during a specific time period. It is calculated on the basis of:	An indication of the volume of research output or productivity for:
	→ country total	→ Greece
	→ category of institutions	→ each category of institutions
	→ scientific field	→ each scientific field
	→ institution	→ each institution
Share of publications (%)	It is calculated as a percentage of:	An indication for the participation of:
	→ Greek publications in relation to EU and OECD publications	→ Greece within all EU and OECD publications
	→ publications per institution category in relation to the total number of Greek publications	→ each institution category within all Greek publications
	→ publications falling under one scientific field in relation to the total number of Greek publications	→ each scientific field within all scientific fields
	→ publications issued by an institution in relation to the total number of publications in the same category of institutions.	→ each institution within the category it belongs to
Percent cited publications (%)	The percentage of publications that have received at least one citation. It is calculated using overlapping 5-year periods for the following units of analysis:	An indication for the levels of visibility / recognition of scientific publications produced by:
	→ country total	→ Greece
	→ category of institutions	→ each category of institutions
	→ institution	→ each institution
Number of citations	The number of citations within a specific time period to articles published by the analysed unit during the same time period. It is calculated using overlapping 5-year periods on the following levels:	An indication of the influence and visibility of scientific publications produced by:
	→ country total	→ Greece
	→ category of institutions	→ each category of institutions
	→ scientific field	→ each scientific field
	→ institution	→ each institution

Indicator	Description	Usage
Share of citations (%)	It is calculated using overlapping 5-year periods as the percentage of citations received by the publications of:	An indication for the influence and visibility of:
	→ Greece in relation to the number of citations that EU and OECD's publications received	→ Greece within the EU and OECD
	→ citations in one category of institutions in relation to the total number of citations for Greek publications	→ each category of institutions within Greece
	→ citations found in each scientific field in relation to the total number of citations for Greek publications	→ each scientific field within all scientific fields
	→ citations in each institution in relation to the total number of citations for the category of institutions	→ each institution within the category it belongs to
Citation impact	<p>The citation impact is the average number of citations per publication and is calculated as the ratio of the number of citations recorded for a specific time period to the total number of publications of the same time period. Calculations in this study have been performed over the entire 1993-2008 time frame or using overlapping 5-year periods.</p> <p>As this indicator does not take into account the variations of citation practices within the different scientific fields, it was mainly used as an intermediate value for the calculation of the relative citation impact of all Greek scientific publications.</p>	An indication for the impact of publications.
Relative citation impact	<p>The relative citation impact compares the citations to publications per unit of analysis [e.g. Greece] in relation to the citations to publications within a certain frame of reference [e.g. the EU countries]. It is calculated as the ratio of the corresponding citation impacts.</p> <p>When the value of the relative citation impact is greater than 1, the publications of the analysed unit have a greater impact than those within the reference frame. The indicator does not take into account the variations of citation practices within the different scientific fields.</p> <p>In this study the relative citation impact was only used to establish Greece's place amongst the member countries of the EU and the OECD and was calculated as the ratio of the citation impact for all Greek publications to the citation impact for the countries of the EU and the OECD.</p>	With reference to all Greek publications in all scientific fields, comparison can be made between the impact of Greek publications and those of EU and OECD publications.

Indicator	Description	Usage
<p>Field normalized citation score (abv: citation score)</p>	<p>This indicator expresses the citation impact normalized according to subject field. It compares the average number of citations to the publications of an analysed unit to the average number of citations to international publications from the same year, in the same research field.</p> <p>The Field Normalized Citation Score or citation score is the key indicator used in this study to estimate the impact of the publications of an analyzed unit in relation to world. It was calculated using software particularly developed by EKT. The specific software permitted normalization of the citation values on an individual article level on the basis of the distribution of publications over the 250 subject fields designated by NSI and NCR-Greece.</p> <p>When the value of the citation score is greater than 1, the publications of the analysed unit have a greater impact than the world average.</p> <p>In the study citation scores were calculated after normalization for:</p>	<p>An indication for the impact of publications taking into account differences in citation practices across scientific fields. The impact of publications relative to world is derived for:</p>
	→ the sum of Greek publications	→ Greece
	→ Greek publications by scientific field	→ Greece within the 6 major scientific fields
	→ the sum of publications for a category of institutions	→ categories of institutions
	→ the publications for a category of institutions by scientific field	→ categories of institutions within the 6 major scientific fields
	→ the sum of publications for an institution	→ institutions
	→ publications of an institution by scientific field	→ institutions within the 6 major scientific fields
<p>Number of top publications (P Top X%)</p>	<p>It is the number of publications attributed to a unit that belongs to the X% most cited publications in the world from the same year, in the same subject field. The ranking was carried out based on the number of citations.</p> <p>The indicator was calculated for the whole period 1993-2008 or for its 5-year periods to the percentile levels 1%, 5%,10%, 25% and 50% [that is the number of publications that were ranked worldwide in the 1%, 5%, 10%, 25% and 50% most cited publications] on the following levels:</p>	<p>An indication of the volume of high impact publications produced by:</p>
	→ country total	→ Greece
	→ category of institutions	→ categories of institutions
	→ institution	→ institution

Indicator	Description	Usage
Percentile breakdown of top publications (Top X%)	<p>It is the share (%) of publications attributed to a unit that belong to the X% most cited publications in the world from the same year, in the same subject field. It is calculated at percentile levels of 1%, 5%, 10%, 25% and 50%.</p> <p>When the percentile breakdown of a unit is approximately that of the corresponding world breakdown (or surpasses it) 1%, 5%, 10%, 25% and 50%, then the performance of the unit is considered equal or above the world average. The indicator is calculated over time periods of five years:</p>	<p>Comparison to the world average for percentile breakdown of top publications is made for:</p>
	<p>→ for country total</p>	<p>→ Greece</p>
	<p>→ per category of institutions</p>	<p>→ each category of institutions</p>
	<p>→ per institution</p>	<p>→ each institution</p>

ANNEX II: Scientific Fields

Major Fields of Science & Technology Frascati Manual	Field Categories Frascati Manual	Subject fields - NCR Greece, NSI Databases
Natural Sciences	Mathematics	<ul style="list-style-type: none"> • mathematics • mathematics, applied • mathematics, interdisciplinary applications • comp critical reviews • statistics & probability
	Computer and Information Sciences	<ul style="list-style-type: none"> • computer science, artificial intelligence • computer science, cybernetics • computer science, information systems • computer science, interdisciplinary applications • computer science, software engineering • computer science, theory & methods • mathematical & comp biology
	Physical Sciences	<ul style="list-style-type: none"> • acoustics • astronomy & astrophysics • optics • physics, applied • physics, atomic, molecular & chemical • physics, condensed matter • physics, fluids & plasmas • physics, mathematical • physics, multidisciplinary • physics, nuclear • physics, particles & fields
	Chemical Sciences	<ul style="list-style-type: none"> • chemistry, analytical • chemistry, applied • chemistry, inorganic & nuclear • chemistry, multidisciplinary • chemistry, organic • chemistry, physical • crystallography • spectroscopy • electrochemistry • polymer science
	Earth and related Environmental Sciences	<ul style="list-style-type: none"> • oceanography • paleontology • geochemistry & geophysics • geography, physical • geology • geoSciences, multidisciplinary

Major Fields of Science & Technology Frascati Manual	Field Categories Frascati Manual	Subject fields - NCR Greece, NSI Databases
		<ul style="list-style-type: none"> • meteorology & atmospheric Sciences • mineralogy • water resources • environmental Sciences
	Biological Sciences	<ul style="list-style-type: none"> • behavioral Sciences • biochemical research methods • biochemistry & molecular biology • biodiversity conservation • biology • biology, miscellaneous • biophysics • cell biology • developmental biology • ecology • entomology • evolutionary biology • genetics & heredity • limnology • marine & freshwater biology • microbiology • mycology • ornithology • plant Sciences • reproductive biology • virology • zoology
	Other Natural Sciences	<ul style="list-style-type: none"> • microscopy
Engineering & Technology	Civil Engineering	<ul style="list-style-type: none"> • construction & building technology • engineering, civil • transportation science & technology
	Electrical Engineering, Electronic Engineering, Information Engineering	<ul style="list-style-type: none"> • automation & control systems • computer science, hardware & architecture • engineering, electrical & electronic • robotics • telecommunications
	Mechanical Engineering	<ul style="list-style-type: none"> • engineering, aerospace • engineering, industrial • engineering, manufacturing • engineering, mechanical • mechanics • nuclear science & technology • thermodynamics

Major Fields of Science & Technology Frascati Manual	Field Categories Frascati Manual	Subject fields - NCR Greece, NSI Databases
	Chemical Engineering	<ul style="list-style-type: none"> • engineering, chemical
	Materials Engineering	<ul style="list-style-type: none"> • materials science, ceramics • materials science, characterization & testing • materials science, coatings & films • materials science, composites • materials science, multidisciplinary • materials science, paper & wood • materials science, textiles • metallurgy & metallurgical engineering • metallurgy & mining
	Medical Engineering	<ul style="list-style-type: none"> • engineering, biomedical
	Environmental Engineering	<ul style="list-style-type: none"> • energy & fuels • engineering, environmental • engineering, geological • engineering, marine • engineering, ocean • engineering, petroleum • mining & mineral processing • remote sensing
	Industrial Biotechnology	<ul style="list-style-type: none"> • materials science, biomaterials • medical laboratory technology • neuroimaging
	Nano-technology	<ul style="list-style-type: none"> • nanoscience & nanotechnology
	Other Engineering and Technologies	<ul style="list-style-type: none"> • food science & technology microbiology • engineering, multidisciplinary • imaging science & photographic technology • instruments & instrumentation
Medical & Health Sciences	Basic Medicine	<ul style="list-style-type: none"> • anatomy & morphology • chemistry, medicinal • cytology & histology • immunology • neuroSciences • pathology • pharmacology & pharmacy • physiology • toxicology
	Clinical Medicine	<ul style="list-style-type: none"> • allergy • andrology • anesthesiology • cardiac & cardiovascular systems • clinical neurology • critical care medicine

Major Fields of Science & Technology Frascati Manual	Field Categories Frascati Manual	Subject fields - NCR Greece, NSI Databases
		<ul style="list-style-type: none"> • dentistry, oral surgery & medicine • dermatology • emergency medicine • endocrinology & metabolism • gastroenterology & hepatology • geriatrics & gerontology • hematology • medicine, general & internal • obstetrics & gynecology • oncology • ophthalmology • orthopedics • otorhinolaryngology • pediatrics • peripheral vascular disease • psychiatry • radiology, nuclear medicine & medical imaging • respiratory system • rheumatology • surgery • transplantation • urology & nephrology
	Health Sciences	<ul style="list-style-type: none"> • health care Sciences & services • health policy & services • infectious diseases • medical ethics • medical informatics • nursing • nutrition & dietetics • parasitology • public, environmental & occupational health • social Sciences, biomedical • sport Sciences • substance abuse • tropical medicine
	Other Medical Sciences	<ul style="list-style-type: none"> • integrative & complementary medicine • medicine, legal • medicine, miscellaneous • medicine, research & experimental
Agricultural Sciences	Agriculture, Forestry, and Fisheries	<ul style="list-style-type: none"> • agriculture, soil science • agronomy • fisheries • forestry

Major Fields of Science & Technology Frascati Manual	Field Categories Frascati Manual	Subject fields - NCR Greece, NSI Databases
		<ul style="list-style-type: none"> • horticulture
	Animal and Dairy Science	<ul style="list-style-type: none"> • agriculture, dairy & animal science
	Veterinary Science	<ul style="list-style-type: none"> • veterinary Sciences
	Other Agricultural Sciences	<ul style="list-style-type: none"> • agricultural economics & policy • agricultural engineering • agriculture, multidisciplinary
Social Sciences	Psychology	<ul style="list-style-type: none"> • ergonomics • psychology • psychology, applied • psychology, biological • psychology, clinical • psychology, developmental • psychology, educational • psychology, experimental • psychology, mathematical • psychology, multidisciplinary • psychology, psychoanalysis • psychology, social
	Economics and Business	<ul style="list-style-type: none"> • business • business, finance • economics • industrial relations & labor • management • operations research & management science
	Educational Sciences	<ul style="list-style-type: none"> • education & educational research • education, scientific disciplines • education, special
	Sociology	<ul style="list-style-type: none"> • anthropology • demography • ethnic studies • family studies • gerontology • social issues • social work • sociology • women's studies
	Law	<ul style="list-style-type: none"> • criminology & penology • law
	Political Sciences	<ul style="list-style-type: none"> • international relations • political science • public administration
	Social and Economic Geography	<ul style="list-style-type: none"> • area studies

Major Fields of Science & Technology Frascati Manual	Field Categories Frascati Manual	Subject fields - NCR Greece, NSI Databases
		<ul style="list-style-type: none"> • environmental studies • geography • planning & development • transportation • urban studies
	Media and Communications	<ul style="list-style-type: none"> • communication • information science & library science
	Other Social Sciences	<ul style="list-style-type: none"> • history of social Sciences • social Sciences, interdisciplinary • social Sciences, mathematical methods
Humanities	History and Archaeology	<ul style="list-style-type: none"> • archaeology • history
	Languages and Literature	<ul style="list-style-type: none"> • applied linguistics • classics • language & linguistics theory • linguistics • literary reviews • literary theory & criticism • literature • literature, African, aust, can • literature, american • literature, british isles • literature, german, dutch, scandinavian • literature, romance • literature, slavic • medieval & renaissance studies
	Philosophy, Ethics and Religion	<ul style="list-style-type: none"> • asian studies • ethics • history & philosophy of science • philosophy • religion
	Arts	<ul style="list-style-type: none"> • architecture • art • dance • film, radio, television • folklore • music • poetry • theater
	Other Humanities	<ul style="list-style-type: none"> • humanities, multidisciplinary

ANNEX III: Member Countries of the OECD and the EU

A. OECD Member Countries

1.	Australia	16.	Korea
2.	Austria	17.	Luxembourg
3.	Belgium	18.	Mexico
4.	Canada	19.	Netherlands
5.	Czech Republic	20.	New Zealand
6.	Denmark	21.	Norway
7.	Finland	22.	Poland
8.	France	23.	Portugal
9.	Germany	24.	Slovak Republic
10.	Greece	25.	Spain
11.	Hungary	26.	Sweden
12.	Iceland	27.	Switzerland
13.	Ireland	28.	Turkey
14.	Italy	29.	United Kingdom
15.	Japan	30.	United States

B. Members States of the European Union

1.	Austria	15.	Latvia
2.	Belgium	16.	Lithuania
3.	Bulgaria	17.	Luxembourg
4.	Cyprus	18.	Malta
5.	Czech Republic	19.	Netherlands
6.	Denmark	20.	Poland
7.	Estonia	21.	Portugal
8.	Finland	22.	Romania
9.	France	23.	Slovakia
10.	Germany	24.	Slovenia
11.	Greece	25.	Spain
12.	Hungary	26.	Sweden
13.	Ireland	27.	United Kingdom
14.	Italy		

Annex IV: Institutions examined

1. Institutions of Higher Education – Universities

-
1. Athens School of Fine Arts

 2. Aristotle University of Thessaloniki

 3. Agricultural University of Athens

 4. Demokritos University of Thrace

 5. International Hellenic University

 6. National & Kapodistrian University of Athens

 7. Hellenic Open University

 8. National Technical University of Athens

 9. Ionian University

 10. Athens University of Economics and Business

 11. University of the Aegean

 12. University of Western Macedonia

 13. University of Thessaly

 14. University of Ioannina

 15. University of Crete

 16. University of Macedonia of Economic and Social Sciences

 17. University of Patras

 18. University of Piraeus

 19. University of Peloponnese

 20. University of Central Greece

 21. Panteion University of Social and Political Sciences

 22. Technical University of Crete

 23. Harokopio University of Athens

The International Hellenic University, the University of Central Greece and the Athens School of Fine Arts were not examined, because of the low number of publications attributed to them.

University publications also include the publications produced by affiliated Research Institutes as well as the publications by the University Hospitals:

-
1. Eginition Hospital

 2. Aretaieio Hospital

 3. University General Hospital "ATTIKON"

 4. University General Hospital of Thessaloniki AHEPA

 5. University Hospital of Alexandroupolis / Academic General Hospital of Alexandroupolis

 6. Univeristy General Hospital of Heraklion / Venizelio-Panakio Hospital of Heraklion

 7. General University Hospital of Larissa

 8. University Hospital of Ioannina / Hadjikota General Hospital of Ioannina

 9. General University Hospital of Patras / "Agios Andreas" General Hospital Patras

2. Institutions of Higher Education - Technological Educational Institutions

1.	School of Pedagogical and Technological Education - ASPETE
2.	TEI (Technological Educational Institute) of Athens
3.	TEI (Technological Educational Institute) of West Macedonia
4.	TEI (Technological Educational Institute) of Epirus
5.	A.T.E.I. (Alexandreio Technological Educational Institute) of Thessaloniki
6.	TEI (Technological Educational Institute) of Ionian Islands
7.	TEI (Technological Educational Institute) of Kavala
8.	TEI (Technological Educational Institute) of Kalamata
9.	TEI (Technological Educational Institute) of Crete
10.	TEI (Technological Educational Institute) of Lamia
11.	TEI (Technological Educational Institute) of Larissa
12.	TEI (Technological Educational Institute) of Messolonghi
13.	TEI (Technological Educational Institute) of Patras
14.	TEI (Technological Educational Institute) of Piraeus
15.	TEI (Technological Educational Institute) of Serres
16.	TEI (Technological Educational Institute) of Chalkida

The School of Pedagogical and Technological Education - ASPETE and TEI (Technological Educational Institute) of Ionian Islands were not examined, because of the low number of publications attributed to them.

3. Research Centres supervised by the General Secretariat of Research and Technology (GSRT)

1.	Athena - Research and Innovation Centre in Information, Communication and Knowledge Technologies	ATHENA
2.	National Centre of Scientific Research DEMOKRITOS	NCSR DEMOKRITOS
3.	National Observatory of Athens	NOA
4.	Greek Atomic Energy Commission	GAEC
5.	National Hellenic Research Foundation	NHRF
6.	Hellenic Pasteur Institute	HPI
7.	The Centre for Research and Technology Hellas	CERTH
8.	National Centre for Social Research	EKKE
9.	Hellenic Centre for Marine Research	HCMR
10.	Foundation for Research and Technology - Hellas	FORTH
11.	Centre For Renewable Energy Sources	CRES
12.	Centre For Research And Technology Thessaly	CERETETH
13.	Biomedical Sciences Research Centre "Alexander Fleming"	BSRC Fleming

CE.RE.TE.TH was not examined since it operates for a very short period (2006).

Publications by ATHENA and CERTH also include those publications produced by initially independent Institutes that were subsequently incorporated with them.

CRES is included in this category, since until 2008, it was supervised by the General Secretariat for Research and Technology

4. Other Public Research Institutions

1.	Academy of Athens	Academy of Athens
2.	Research Academic Computer Technology Institute	RA-CTI
3.	National Agricultural Research Foundation	NAGREF
4.	Institute of Geology and Mineral Exploration	IGME
5.	Institute of Engineering Seismology and Earthquake Engineering Research and Technical Institute	ITSAK
6.	Centre of Planning and Economic Research	KEPE
7.	Benaki Phytopathological Institute	BPI

Publications by the Academy of Athens also include the publications by the Biomedical Research Foundation (BRF).

5. Public Health Institutions

The main institutions in this category are:

1.	"Agios Savvas" Regional Hospital for Cancer Treatment	Agios Savvas
2.	"Aghia Sophia" Children's Hospital	Aghia Sophia
3.	G. Papanikolaou General Hospital of Thessaloniki	G. Papanikolaou
4.	Evaggelismos Hospital Athens	Evaggelismos
5.	"Ippokratio" Regional General Hospital of Athens	Hippocrates
6.	KORGIALENIO-BENAKIO Hospital of Athens	KORGIALENIO
7.	General Hospital of Athens LAIKO	LAIKO
8.	Metaxa Cancer hospital of Piraeus	METAXA
9.	Tzaneio General Hospital of Piraeus	TZANEIO
10.	Onassis Cardiac Surgery Centre	OCSC

6. Private Health Institutions

The main institutions in this category are:

1.	St. Luke's Hospital	St. Luke
2.	Alfa Institute of Biomedical Sciences	AIBS
3.	Henry Dunant hospital	Hendry Dunant
4.	IASO Hospital	IASO
5.	MITERA Maternity Hospital	MITERA
6.	Diagnostic And Therapeutic Centre Of Athens - Hygeia	Hygeia



ΕΘΝΙΚΟ ΚΕΝΤΡΟ
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ISBN: 978-960-89499-2-8

A decorative graphic in the bottom right corner consists of several overlapping, stylized arrows pointing upwards and to the right. The arrows are in various colors including red, orange, purple, and green, creating a sense of movement and progress.