## THE GLOBALIZATION OF WEB OF SCIENCE<sup>™</sup>: 2005-2010

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# THE GLOBALIZATION OF WEB OF SCIENCE<sup>™</sup>: 2005-2010

## **INTRODUCTION**

The Web of Science from Thomson Reuters Web of Knowledge<sup>SM</sup> has become an integral part of the daily lives of millions of researchers in universities and research facilities the world over. The global presence of Web of Science fosters and facilitates discovery and international collaboration among researchers as they interact with its rich metadata representation of the world's scholarly literature.

In recent years we have witnessed a flood of original research issuing from every country and region on earth. Whereas important scholarly communications in the natural sciences, social sciences, and the arts & humanities were once generated principally by a relatively small number of academic and research institutions in the US and UK, we now see research emerging from a broad international community of scholars. In addition, the number of researchers and nations accessing *Web of Science* has increased dramatically in recent years. To meet the demands of the global research community, Thomson Reuters continually seeks to complement its coverage of top tier, highly cited international journals with an appropriately broad representation of the world's best regional literature. Current coverage of journals in *Web of Science* reflects this approach to the expanding world of scholars and scholarship.

Each journal covered in *Web of Science* has been selected only after rigorous evaluation by the Thomson Reuters Editorial Development staff. In any given year Thomson Reuters evaluates around 2,500 journals for possible coverage in *Web of Science*. Only around 10% of these are accepted for coverage.

However, from 2007 to 2009 the Editorial Development Department at Thomson Reuters focused on a collection of more than 10,000 regional journals (these are journals published outside the US or UK that contain the scholarship of authors from a particular region or country, and cover topics of regional interest or topics studied from a regional perspective). Sixteen hundred (1,600) of these 10,000 journals met Thomson Reuters standards and were selected for coverage<sup>1</sup>.

As a direct result, Thomson Reuters has effectively realigned journal coverage in *Web of Science*. This was done in consideration of both the increasingly global nature of scholarly research and the needs of the global community of *Web of Science* users. *Web of Science* now includes the best regional journals complementing its coverage of top tier international journals. As a result, the *Web of Science* has become a central repository for the most influential global research of the day.

Regional journals, like journals targeting an international audience, are plentiful, but as we have seen, there are relatively few that are of high enough quality for coverage in *Web of Science*. We will also see that specific countries and subject areas have achieved relatively greater representation in *Web of Science* in recent years. A key component of the Thomson Reuters editorial mission, however, is to ensure that all journals added to *Web of Science* coverage be evaluated and selected **individually** according to the principles articulated in the *Thomson Reuters Journal Selection Process*<sup>2</sup>. Through diligent application of the Journal Selection Process we are able to bring our users the studies that will advance their work while avoiding a great deal of marginal research.

- 1. Testa, J. Regional Content Expansion in Web of Science: Opening Borders to Exploration. http://thomsonreuters.com/products\_services/science/free/essays/regional\_content\_expansion\_wos/
- 2. Testa, J. Thomson Reuters Journal Selection Process. http://thomsonreuters.com/products\_services/science/free/essays/journal\_selection\_process/

#### **OVERVIEW OF WEB OF SCIENCE COVERAGE - 1980 TO 2010**

The steady growth of scholarly communication has been reflected organically in *Web of Science* over the years. Between 1980 and 1990 we saw an 11% increase in total journal coverage. By 2000, journal coverage had increased by an additional 21% over 1990. Between 2000 and 2010, however, *Web of Science* grew by 43% with 3,511 journals added during the period (Figure 1).



**Figure 1:** During the period 1980-1990 *Web of Science* added 654 journals bringing total coverage from its 1980 starting point of 6,130 journals to 6,784. Between 1990 and 2000 1,444 journals were added bringing total coverage to 8,228. From 2000 to 2010 3,511 journals were added bringing total coverage to 11,739 journals.

As mentioned above, in a recent three year period (2007-2009) Thomson Reuters broadened its approach to the evaluation and selection of regional scholarship. This resulted in the addition of 1,600 regional journals to *Web of Science* in a relatively short period of time. The addition of these 1,600 regional journals, combined with regular additions to coverage, made the last six-year period, 2005-2010, a time of unprecedented growth for *Web of Science*. In 2005 journal coverage in *Web of Science* included 8,830 journals. By 2010 another 2,906 had been selected (Figure 2).



Figure 2: During the period 2000-2010 *Web of Science* added 3,511 journals to its coverage resulting in total 2010 journal coverage of 11,736. 83% or 2,906 of journal additions occurred during the period 2005-2010. This was the result of regular coverage additions combined with the specific focus on regional content from 2007 to 2009.

This recent growth spurt has changed the fabric of the *Web of Science* in unique ways. To survey these changes, we must consider not only the increase in top-tier international coverage but also the regional surge. The 1,600 regional journals added from 2007-2009 account for 55% of all new journals indexed between 2005-2010, and 45% of new journals from 2000 to 2010. To explore the potential impact of the regional initiative, we can review changes in the representation of journals from specific countries in *Web of Science* as well as changes in broad subject areas:

- Agriculture Biology & Environmental Sciences (ABES)
- Arts & Humanities (AH)
- Clinical Medicine (CM)
- Engineering Computing & Technology (ECT)

- Life Sciences (LS)
- Physics Chemistry & Earth Sciences (PCES)
- Social & Behavioral Sciences (SBS)

These seven subject areas were used by Eugene Garfield, Ph.D,( founder of the Institute for Scientific Information, and creator of Current Contents<sup>®</sup> and the Science Citation Index<sup>®</sup>) to organize the literature he presented in Current Contents<sup>©</sup>. While these subject areas are not used as such directly in *Web of Science*, they are useful in organizing the scholarly literature for the purposes of this discussion. Each of these broad subject areas can be broken down into a number of more specific categories. As we examine the broad subject areas, we will look further at the specific underlying categories thus adding another level of detail to the editorial view of *Web of Science*. The lists of specific categories that comprise the 7 broad subject areas may be seen in Appendix B.

#### **REPRESENTATION OF COUNTRIES IN WEB OF SCIENCE**

At the end of 2010 *Web of Science* covered 11,739 journals published in 87 different countries. From 2005 to 2010, fourteen (14) of these countries were represented for the first time (Figure 3).

Country	2010 Journal Coverage in Web of Science
AZERBAIJAN	1
BOSNIA & HERCEGOVINA	4
BELARUS	3
ICELAND	3
JORDAN	1
LIBYA	1
MACEDONIA	2
MALAWI	1
MOLDOVA	1
NEPAL	1
NIGERIA	12
SERBIA	20
SRI LANKA	1
UGANDA	1

**Figure 3:** Journal coverage from these 14 countries was added to *Web of Science* for the first time between 2005 and 2010. Geopolitical and publisher changes do, in some cases, account for the 2010 attribution of a journal to a country. Four journals now published in Serbia, for example, were covered in *Web of Science* before 2005 but originated from different countries (3 were formerly from Yugoslavia and one was published in Germany).

Journal coverage increased for virtually all 87 countries from 2005 to 2010. As expected, England, United States, Netherlands, and Germany, four centers of international scholarly publishing, experienced the greatest increases in *Web of Science* journal coverage. These four countries introduced the most new coverage in virtually every subject area, typically outranking all other countries. To bring the rest of the world's presence in *Web of Science* into sharper focus, we will look at the 2005-2010 output from these four nations separately. Excluding these top 4 producers, we see that there are 14 other countries whose journal coverage in *Web of Science* grew by over 40 journals during the period 2005-2010. (Figure 4). The three



**Figure 4:** Each of these 14 countries added 40 or more journals to *Web of Science* from 2005-2010. While France and Japan account for the highest number of covered journals among these countries, Spain and Brazil experienced the greatest growth during the period with 112 and 105 journals added respectively. Croatia, Romania and Turkey were previously narrowly covered. Each of these three countries now has substantial representation in *Web of Science*.

countries with the greatest overall increase in journal coverage in Web of Science during the period are:

- Spain 112 journals added
- Brazil 105 journals added
- Australia 97 journals added

See Appendix A for a list of all countries represented in *Web of Science* and the difference in number of journals covered from 2005 to 2010.

#### DEVELOPMENT OF SUBJECT AREAS IN WEB OF SCIENCE 2005-2010

Organizing the journals covered in *Web of Science* into the 7 broad subject areas mentioned above, we can look further into the editorial changes that have occurred from 2005 to 2010 (Figure 5). All subject areas expanded, but the three with highest rate of expansion are:

- Social & Behavioral Sciences 51% increase in coverage
- Clinical Medicine 42% increase in coverage
- Arts & Humanities 38 % increase in coverage

Social & Behavioral Sciences and Clinical Medicine have expanded by 933 and 671 journals, respectively, during the period. As Thomson Reuters increased its interest in excellent regional publications, we found that these two subject areas were extremely rich sources of content; their editorial direction is often guided by regional concerns. Arts & Humanities coverage expanded by 434 journals. Arts & Humanities continues to be an area of steady growth with significant expansion of coverage particularly from excellent European and Latin American sources. Inclusion of English language bibliographic information is a general requirement for journals in *Web of Science* (particularly in the natural sciences). However, more than one third of our 1,573 Arts & Humanities studies are based on creative works of the people of a specific country or region and, therefore, are most appropriately expressed in the language of those peoples). Where English bibliographic information is not provided, Thomson Reuters translates the article titles and keywords.



Figure 5: Each subject area experienced significant growth during the period (subjects are arranged alphabetically). Social & Behavior Sciences and Clinical Medicine subject areas added the most journals during the period.

Within each broad subject area we have seen the expansion of coverage from specific countries and in specific categories. In the following section we will take a closer look at these changes. We will look at the top countries represented in each subject area exclusive of the US, England, Germany, and the Netherlands. Of the thousands of journals evaluated during this period, we found that, across all areas of scholarly publishing, most journals were unable to uphold excellent publishing standards and/or include novel content. As a result, a relatively small percentage was selected for coverage.

In the following sections we will look at the changes in each of the 7 broad subject areas. Each of these subject areas is comprised of smaller, more specific categories, and it is changes at this category level that we will review. The category observations include output from the US, England, Germany, and the Netherlands. A key to the categories underlying each of the broad subject areas may be found at Appendix B. These categories will provide the editorial infrastructure for *Web of Science* and are also essential components of the Journal Citation Reports<sup>©</sup>.

#### Agriculture Biology & Environmental Sciences (ABES)

a. Representation of Countries 2005-2010

The ten countries with the greatest increase in representation in this subject area are listed in Figure 6. While Japan contributed the most journals overall, the most new coverage came from

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Brazil. The three countries with the greatest number of journals added are:

- Brazil 34 journals added
- India 21 journals added
- Poland 15 journals added

It is also noteworthy that more journals from Brazil were added during the period than from Germany or the Netherlands which added 28 and 24 journals, respectively.



Fourteen countries are now represented in this subject area for the first time (Figure 7).

New Country	2010 ABES Journal Coverage in Web of Science
ARGENTINA	3
COLOMBIA	5
EGYPT	1
GREECE	3
ICELAND	1
IRAN	8
LITHUANIA	4
NIGERIA	1
PORTUGAL	1
ROMANIA	6
SERBIA	2
SLOVENIA	1
THAILAND	2
U ARAB EMIRATES	1

#### b. Editorial Content of the Agriculture Biology & Environmental Sciences Subject Area 2005-2010

The categories in this subject area with greatest growth from 2005 to 2010 are listed in Figure 8. Among the high growth categories in the period were 'Ecology', 'Environmental Sciences',

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**Figure 7:** 14 countries are represented in this subject area for the first time during the period.

Figure 6: With 59 total journals

covered, Japan has the greatest

the greatest increase during the

representation in this subject area while Brazil experienced

period.

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'Plant Sciences' and 'Agronomy'. These categories are closely related to one another and reflect a growing global interest in sustainable development and environmental protection and the cultivation of regionally sustainable crops. Another related area showing marked growth is 'Food Science & Technology'.

See Table 1 in Appendix B for a listing of all categories covered in the subject area Agriculture Biology & Environmental Sciences.

#### Arts & Humanities (AH)

#### a. Representation of Countries 2005-2010

The twelve countries with the greatest increase in representation in this subject area are listed in Figure 9. Italy continues to have the strongest representation, but Spain has contributed the most new coverage. Latin American countries are well represented. Turkey and Estonia, now with 7 and 6 journals covered, respectively, are represented for the first time.

Figure 9: These 12 countries experienced the greatest growth in Arts& Humanities coverage during the period. Countries are ranked by number of journal added 2005-2010.



Nine countries are now represented in Arts & Humanities for the first time (Figure 10).

New Country	2010 AH Journal Coverage in Web of Science
ARGENTINA	2
COLOMBIA	3
ESTONIA	6
GREECE	2
LITHUANIA	3
PHILIPPINES	2
SINGAPORE	1
TURKEY	7
VENEZUELA	1

Figure 10: 9 countries are represented in this subject area for the first time during the period.

#### b. Editorial Content of the Arts & Humanities subject area 2005-2010

The categories with greatest growth from 2005 to 2010 are listed in Figure 11.

The greatest expansion in Arts & Humanities coverage during the period was in the subject categories of 'Language & Linguistics', 'History' and 'Philosophy'. This may be seen not only as a reaffirmation of the typically predominant position held by these categories within the Humanities themselves, but also as a reflection of their strength and relatedness to cognate areas in the Social Sciences and Sciences. Similarly, this general and growing trend in interdisciplinarity may, in part, help to explain the substantial increase also witnessed in the collection's 'Humanities, Multidisciplinary' subject category. Two other areas of quite significant and continuing growth were 'Religion' and 'Archaeology'.

See Table 2 in Appendix B for a listing of all categories covered in the subject area Arts & Humanities.



#### Clinical Medicine (CM)

#### a. Representation of Countries 2005-2010

Figure 12 lists the ten countries whose representation in the Clinical Medicine subject area increased the most during the period. While France has the greatest representation overall, Australia experienced the greatest expansion. The truly global range of countries in this top ten list is an indicator of the essentially regional aspect of many studies in Clinical Medicine. Countries from Europe (Eastern and Western), Asia-Pacific, South America, and the Middle East have all made significant advances in their representation of Clinical Medicine journals in Web of Science. Eight of these ten countries added 20 or more journals to coverage during the period.

Iran is among the top ten countries with 15 journals included, all of which were added during the 6-year period. The triple and quadruple rates of growth in Clinical Medicine coverage for Turkey, Poland, Brazil, and South Korea are also noteworthy.

Figure 11: These ten categories had the greatest increase in journals covered during the period. History remains the largest category while Language & Linguistics added the most journals during the period.

**Figure 12:** In this subject area there are 57 journals from Australia; 67 from France; 30 from Brazil; 50 from Italy; 26 from Turkey; 50 from Japan; 34 from Spain; 22 from Poland; 18 from South Korea; and 15 from Iran.



Eighteen countries are now represented in this subject area for the first time (Figure 13).

New Country	2010 <b>CM</b> Journal Coverage in Web of Science
BOSNIA & HERCEGOVINA	2
COLOMBIA	3
ICELAND	1
IRAN	15
KUWAIT	2
LIBYA	1
LITHUANIA	1
MALAWI	1
MALAYSIA	3

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Figure 13: 19 countries are represented in this subject area for the first time during the period.

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NEPAL	1
NIGERIA	2
PAKISTAN	2
PORTUGAL	3
ROMANIA	5
ROMANIA	5
SERBIA	2
SLOVENIA	2
U ARAB EMIRATES	2
UGANDA	1

#### b. Editorial Content of the Clinical Medicine subject area

The categories with greatest growth from 2005 to 2010 are listed in Figure 14. 'Medicine, General & Internal', 'Oncology' and clinical practice categories such as 'Nursing' and 'Surgery', continue to experience the greatest growth in the Clinical Medicine subject area.

'Public Environmental & Occupational Health', a field closely related to 'Medicine, General & Internal' also experienced remarkable growth during the period. Growth in these two categories reflects a global interest in health promotion, the early application of epidemiological principles to disease outbreaks and tracking disease outbreaks in specific communities, as well as disease prevention strategies. Hot topics in Clinical Medicine are related to the US healthcare reform bill as it relates to physicians' practice, income and professional independence; the pros and cons of various influenza vaccines and their availability and current recommendation in treatment; and important new studies and advances in diagnosis and care of patients in the primary care setting.



2005-2010: Clinical Medicine **Categories with Greatest Increase in Journals** 200 180 **Number of Journals Covered** 160 140 120 100 80 60 Added 2005-2010 40 2005 Cove 20 0 MED, GENERAL PUBLIC, ENV & CARDIAC & CARDIOVASC SYS CLINICAL DENTISTRY & ONCOLOGY NURSING SURGERY PSYCHIATRY PEDIATRICS & INTERNAL OCCUP HITH NEUROLOGY ORAL SURGERY 2010 Covg 183 94 188 158 142 186 113 128 108 77 Added 2005-2010 56 52 50 41 34 33 58 39 36 26 2005 Covg 136 125 38 108 77 101 147 94 75 51 Categories

### See Table 3 in Appendix B for a listing of all categories covered in the subject area Clinical Medicine.

#### Engineering Computing & Technology (ECT)

a. Representation of Countries 2005-2010

The countries with the greatest increase in representation in this subject area are listed in (Figure 15). Japan continues to lead in overall coverage in this subject area but China, Poland, South Korea and Romania all made quite significant gains during the period.



Eleven countries are represented in Engineering Computing & Technology for the first time in 2010 (Figure 16).

New Country	2010 ECT Journal Coverage in Web of Science
BOSNIA & HERCEGOVINA	1
BULGARIA	1
BELARUS	2
CHILE	2
COLOMBIA	4
JORDAN	1
LATVIA	1
MACEDONIA	1
MALAYSIA	1
SERBIA	8
U ARAB EMIRATES	2

Figure 15: Japan, China, and Russia lead in total coverage in this subject area with China leading in number of journals added during the period.

Figure 16: 11 countries are represented in this subject area for the first time during the period.

#### b. Editorial Content of the Engineering Computing and Technology subject area 2005-2010

The ten categories listed in Figure 17 have had the greatest increase in coverage during the period. Three categories have contributed significant scholarship to this subject area. These are Materials Science, Multidisciplinary; Engineering, Electrical & Electronic; and Computer Science. Research in

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Materials Science has been propelled forward by advances in biomedical science, communication and especially nanoscience and nanotechnology. Research in nanoscience, nanoelectronics and optoelectronics are also advancing applications in communication and signal processing.

See Table 4 in Appendix B for a listing of all categories covered in the subject area Engineering Computing & Technology.

#### Life Sciences (LS)

#### a. Representation of Countries 2005-2010

The countries with the greatest increase in journal coverage during the period are listed in (Figure 18). Japan and France lead with the number of journals covered, but India and Poland added the most journals to coverage during the period. (Figure 16)



There are 17 countries represented for the first time in 2010 in Life Sciences (Figure 19).

New Countries	2010 <b>LS</b> Journal Coverage in Web of Science
BAHRAIN	1
BANGLADESH	1
BOSNIA & HERCEGOVINA	1
BULGARIA	1
COLOMBIA	2
EGYPT	1
ESTONIA	1
MACEDONIA	1
MALAYSIA	1
NIGERIA	6
PAKISTAN	3
PHILIPPINES	1
SERBIA	3
SRI LANKA	1
TURKEY	7
U ARAB EMIRATES	7
UKRAINE	1

**Figure 19:** Among the countries with the greatest increase in coverage is Greece which added 5 journals during the period.

Figure 18: Among the countries with the greatest increase in

coverage is Greece which added

#### b. Editorial Content of the Life Sciences Subject Area 2005-2010

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The 10 Life Sciences categories with greatest growth during the period are shown in Figure 20. Two traditionally high volume categories, 'Biochemistry & Molecular Biology' and 'Neurosciences', have grown steadily. Neuropsychiatry, a subspecialty in Neuroscience, has emerged. Growth of research

in two other areas, 'Mathematical & Computational Biology' and 'Cell & Tissue Engineering' has resulted in the formation of new journal categories on these subjects. Methods-driven topics such as drug delivery and the current demands for new pharmaceuticals combining traditional herbal medicine with western medicine have helped drive an increase in 'Pharmacy & Pharmacology' and 'Chemistry, Medicinal' coverage. There has also been a resurgence of microbial production of products reflected in the start-up of new journals such as Biofuels Bioproducts & Biorefining, and Biofabrication.



**Figure 20:** These 10 Life Science categories added the most journals during the period. Compared to other biomedical subject areas such as Clinical Medicine and Agriculture Biology & Environmental Sciences, the rate of growth of Life Sciences categories during the period was modest. One explanation for this may be the global nature of many studies in these categories and the lack of many top tier regional journals dealing with Life Sciences topics.

See Table 5 in Appendix B for a listing of all categories covered in the subject area Life Sciences.

#### Physics Chemistry & Earth Sciences (PCES)

#### a. Representation of Countries

Figure 21 shows the ten countries with the greatest growth in this subject area. Romania, Brazil, Ukraine, and Spain have all made significant advances in their representation in this subject area.



Figure 21: These ten countries added the greatest numbers of journals to this subject area during the period. There are 13 countries represented for the first time in Physics Chemistry & Earth Sciences as of 2010 (Figure 22).

New Countries	2010 <b>PCES</b> Journal Coverage in <i>Web of Science</i>
AZERBAIJAN	1
BELARUS	2
COLOMBIA	3
ESTONIA	2
GREECE	1
ICELAND	1
MACEDONIA	1
MALAYSIA	3
MOLDOVA	1
NIGERIA	2
PORTUGAL	1
SRI LANKA	1
THAILAND	3

Figure 22: These 13 countries are represented in the Physics Chemistry & Earth Science subject area for the first time as of 2010.

#### b. Editorial Content of Physics Chemistry & Earth Sciences

The categories with the greatest increase in journal coverage during the period are listed in (Figure 23). By far, the greatest increase in subject coverage has been in the area of Mathematics, including 'Mathematics, Applied' and 'Statistics & Probability'. Every country and most universities produce their own mathematics journal. Thomson Reuters' recent heightened interest in regional content, along with a relatively high interest from users, provided an opportunity to include some of these publications and to grow *Web of Science* Mathematics coverage.

The second largest area of increased coverage has been in Earth Sciences, including 'Oceanography', 'Paleontology', and 'Meteorology & Atmospheric Sciences'. There has also been an uptick in new journals covering global climate change.

Thirdly, as already noted in Engineering Computing & Technology, there has been substantial growth in the areas of Materials Science, including much crossover in 'Physics, Applied' and 'Polymer Science'. 'Nanoscience and Nanotechnology', largely a subset of Materials Science and a very hot topic, has experienced a noticeable increase leading to the development of a new subject category.

General Chemistry and Physics categories have seen modest, steady growth during the period.

A listing of all Physics Chemistry & Earth Science categories with the number of journals covered may be found in Appendix B, Table 6.



**Figure 23.** These 12 categories have experienced the greatest growth during the period.

#### Social & Behavioral Sciences (SBES)

#### a. Representation of Countries

The countries with the greatest increase in representation in this subject area are listed in (Figure 24). These countries have all built up their presence significantly, most notably Australia, Spain and Brazil.

Figure 24. These ten countries added the most journals to this subject area during the period.



Figure 25 lists fourteen countries that are represented in this subject area for the first time during the period.

New Countries	2010 <b>SBS</b> Journal Coverage in <i>Web of Science</i>
ESTONIA	3
ETHIOPIA	1
HUNGARY	6
IRAN	1
LATVIA	1
LITHUANIA	7
MALAYSIA	2
NIGERIA	3
PHILIPPINES	3
POLAND	9
ROMANIA	10
SERBIA	2
UKRAINE	1
VENEZUELA	4

Figure 25: These 14 countries are represented for the first time in *Web of Science* during the period

#### b. Editorial Content of Social & Behavioral Sciences 2005-2010

'Economics' and the related areas of 'Education & Educational Research' and 'Linguistics' have experienced the greatest growth from 2005 to 2010. Globalization has fueled growth in the 'Management', 'Business' and 'Economics' categories. In the 'Linguistics' category, growth reflects the multidisciplinary applications of linguistics in many areas of research, from arts and humanities literary expression to scientific languages (computational linguistics).

The expansion of Social & Behavioral Sciences has been the most significant in terms of journals added. The 'Economics' and 'Linguistics' categories increased by over 100 journals each. In addition to the categories listed in Figure 26 the 'Business, Finance', 'History', 'Social Sciences, Interdisciplinary', and 'Geography' categories grew by over 30 journals each. A new category, 'Hospitality Leisure Sport & Tourism' was formed in response to the growing numbers of journals in this field and covers 31 journals.

See Table 7 in Appendix B for a listing of all categories covered in the subject area Social and Behavioral Sciences.



**Figure 26.** These ten categories experienced the greatest growth in journal coverage during the period.

#### **SUMMARY**

The expansion of *Web of Science* over the past 30 years has paralleled the global expansion of the publication and dissemination of scholarly research. Between 1980 and 1990 *Web of Science* grew by 11%; from 1990 to 2000 it grew by 21%; from 2000 to 2010 it grew by 42% with a large proportion of this growth happening in the period 2005-2010. During that six-year period, *Web of Science* broadened its editorial scope to include top tier regional journals complementing its already deep coverage of top tier international journals. In rankings of journals from countries overall and from countries in specific subject areas, the United States, England, Germany and Netherlands were excluded as these countries are typically dominant producers of scholarly publications. National rankings are presented to highlight the emerging centers of scholarly research. For example, Spain, Brazil, Australia, Poland, Turkey, Italy, France, China, South Korea, Japan, India, Romania, Croatia and South Africa all increased their representation in *Web of Science* by more than 40 journals. Indeed, countries such as Turkey and Romania went from very narrow representation (7 and 8 journals, respectively) to significant coverage (75 and 60 journals, respectively). There are now 87 countries represented in *Web of Science*, 14 (16%) of of which were represented for the first time at the journal level by 2010.

To analyze editorial growth of *Web of Science* we divided the coverage into 7 broad subject areas, namely Agriculture Biology & Environmental Sciences; Arts & Humanities; Clinical Medicine; Engineering Computing & Technology; Life Sciences; Physics Chemistry & Earth Sciences; and Social & Behavioral Sciences. The three subject areas that have experienced the highest rate of expansion during the period are Social & Behavioral Sciences (51% increase); Clinical Medicine (42% increase); and Arts & Humanities (38% increase). Expansion of content in these three areas has been driven, to a great extent, by the Thomson Reuters heightened interest in regional content from 2007 to 2009. We have seen coverage in certain categories in these subject areas increase dramatically (*e.g.*, Linguistics, Economics, Nursing, General and Internal Medicine, History, Religion).

Life Sciences categories, on the other hand, experienced only modest growth during the period with far fewer regional journals selected for coverage. This is largely due to the nature of Life Sciences research, which is generally global in scope with little that is unique to a particular region. Certain topic areas, such as 'Pharmacy & Pharmacology', will lend themselves more to regional targeting, but many more do not. Topics in this latter group include 'Biochemistry & Molecular Biology', 'Neurosciences', and 'Immunology'. Limited regional availability of equipment and reagents may also play a role.

Within each of the 7 subject areas, we have seen the expansion of coverage from specific countries and in specific categories and have noted the top countries contributing to each category. Some countries are notable not only for the overall expansion of their presence in *Web of Science*, but also for the editorial scope of the journals they publish. For example, Brazil, Japan, Poland, South Korea, and Spain are top contributors to 6 of the 7 broad subject areas; Australia, France, Italy and Turkey are also top contributors in several subject areas.

Journal coverage in *Web of Science* is carefully managed by the Editorial Development Department at Thomson Reuters whose members apply the principles set forth in the Thomson Reuters Journal Selection Process. The remarkable growth in coverage in recent years, therefore, has resulted in coverage of the world's top tier international and regional journals in *Web of Science*, a resource that has become a central repository for the most influential research of the day.

*Web of Science* is well known for the selectivity of its content. The Editorial Development team takes great care in maintaining quality standards in selecting both international and regional content. As the presence of *Web of Science* proliferates throughout the international research community, Thomson Reuters is privileged to offer a resource of value to users not only as a source of discovery but also as a destination for their best work. Because coverage in *Web of Science* is reserved for top tier publications, visibility in *Web of Science* through publication in one of its covered journals has become a tangible goal for researchers, universities, and nations. Pursuit of this goal helps drive excellence in scholarly communication worldwide. Thomson Reuters recognizes the importance of the role *Web of Science* may play beyond discovery. We will continue to make significant investment in the evaluation and selection of the best emerging scholarly publications for coverage in *Web of Science*.

Thanks to the many journal editors who provided commentary on developments in their subject areas: Mariana Boletta, Sr. Editor Science; Rodney Chonka, Editor, Physics Chemistry & Earth Sciences; Maureen Handel, Manager, Journal Selection; Anne Marie-Hinds, Editor, Social & Behavioral Sciences; Katherine Junkins-Baumgartner, Editor, Life Science; Chang Liu, Editor, Engineering Computing & Technology; Kathleen Michael, Sr. Editor, Life Sciences; Luisa Rojo, Editor, Clinical Medicine; Nancy Thornton, Editor, Social & Behavioral Sciences; and Pedro Vieira, Editor, Arts & Humanities.

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#### **APPENDIX A**

## Countries Represented in *Web of Science* with Growth in Journal Coverage 2005-2010

Country	2005 Journal Coverage	2010 Journal Coverage	Growth
ARGENTINA	6	21	15
ARMENIA	1	3	2
AUSTRALIA	92	189	97
AUSTRIA	30	45	15
AZERBAIJAN	0	1	1
BAHRAIN	1	2	1
BANGLADESH	2	4	2
BELGIUM	31	49	18
BOSNIA & HERCEGOVINA	0	4	4
BRAZIL	27	132	105
BULGARIA	3	11	8
BELARUS	0	3	3
CANADA	150	170	20
CHILE	12	47	35
COLOMBIA	1	23	22
COSTA RICA	1	1	0
CROATIA	14	61	47
CUBA	1	1	0
CZECH REPUBLIC	30	56	26
DENMARK	66	67	1
ECUADOR	1	1	0
EGYPT	1	3	2
ENGLAND	1809	2392	583
ESTONIA	1	9	8
ETHIOPIA	2	2	0
FINLAND	14	17	3
FRANCE	221	283	62
GERMANY	596	745	149
GREECE	4	17	13
HUNGARY	17	41	24
ICELAND	0	3	3
INDIA	53	113	60
IRAN	5	41	36
IRELAND	27	33	6
ISRAEL	17	16	-1
ITALY	116	181	65
JAMAICA	1	1	0
JAPAN	176	237	61
JORDAN	0	1	1
KENYA	2	3	1
KUWAIT	1	3	2
LATVIA	1	3	2
LIBYA	0	1	1
LITHUANIA	2	29	27
MACEDONIA	0	2	2

Appendix A continued

MALAWI	0 1		1
MALAYSIA	1	10	9
MALTA	1	1	0
MEXICO	17	43	26
MOLDOVA	0	1	1
NEPAL	0	1	1
NETHERLANDS	715	845	130
NEW ZEALAND	30	38	8
NIGERIA	0	12	12
NORWAY	45	47	2
PAKISTAN	2	13	11
PEOPLES R CHINA	83	145	62
PERU	1	1	0
PHILIPPINES	1	10	9
POLAND	57	142	85
PORTUGAL	2	9	7
ROMANIA	8	60	52
RUSSIA	121	155	34
SAUDI ARABIA	3	5	2
SCOTLAND	32	26	-6
SERBIA	0	20	20
SINGAPORE	39	57	18
SLOVAKIA	16	26	10
SLOVENIA	6	26	20
SOUTH AFRICA	27	68	41
SOUTH KOREA	37	99	62
SPAIN	54	166	112
SRI LANKA	0	1	1
SWEDEN	25	31	6
SWITZERLAND	183	201	18
TAIWAN	18	38	20
THAILAND	1	8	7
TRINID & TOBAGO	1	1	0
TURKEY	7	75	68
U ARAB EMIRATES	3	11	8
UGANDA	0	1	1
UKRAINE	8	18	10
UNITED STATES	3734	4232	498
URUGUAY	1	1	0
UZBEKISTAN	1	1	0
VENEZUELA	4	14	10
WALES	11	9	-2
TOTAL	8830	11739	2909

#### **APPENDIX B**

#### Categories Underlying 7 Broad Subject Areas

#### Table 1: Agriculture Biology & Environmental Sciences

Category	# Journals in 2005	# Journals in 2010	Growth
AGRICULTURAL ECONOMICS & POLICY	9	14	5
AGRICULTURAL ENGINEERING	9	13	4
AGRICULTURE, DAIRY & ANIMAL SCIENCE	43	56	13
AGRICULTURE, MULTIDISCIPLINARY	32	61	29
AGRONOMY	47	76	29
BIODIVERSITY CONSERVATION	27	40	13
BIOTECHNOLOGY & APPLIED MICROBIOLOGY	140	162	22
ECOLOGY	115	140	25
ENTOMOLOGY	69	87	18
ENVIRONMENTAL SCIENCES	147	201	54
EVOLUTIONARY BIOLOGY	35	46	11
FISHERIES	40	48	8
FOOD SCIENCE & TECHNOLOGY	94	125	31
FORESTRY	36	58	22
HORTICULTURE	22	35	13
LIMNOLOGY	17	20	3
MARINE & FRESHWATER BIOLOGY	78	100	22
MYCOLOGY	17	23	6
NUTRITION & DIETETICS	55	74	19
OCEANOGRAPHY	48	63	15
ORNITHOLOGY	18	21	3
PARASITOLOGY	22	32	10
PLANT SCIENCES	145	202	57
SOIL SCIENCE	31	33	2
VETERINARY SCIENCES	130	150	20
WATER RESOURCES	58	77	19
ZOOLOGY	119	152	33

#### Table 2: Arts & Humanities

Category	# Journals in 2005	# Journals in 2010	Growth
ARCHAEOLOGY			
ARCHITECTURE	20	39	19
ART	66	72	6
ASIAN STUDIES	35	49	14
CLASSICS	33	43	10
DANCE	6	7	1
FILM, RADIO, TELEVISION	19	26	7
FOLKLORE	16	18	2
HISTORY	181	264	83
HISTORY & PHILOSOPHY OF SCIENCE	34	57	23
HUMANITIES, MULTIDISCIPLINARY	84	128	44
LANGUAGE & LINGUISTICS	83	171	88
LITERARY REVIEWS	57	56	-1
LITERARY THEORY & CRITICISM	18	21	3

#### Table 2 continued

LITERATURE	113	123	10
LITERATURE, AFRICAN, AUSTRALIAN, CANADIAN	7	6	-1
LITERATURE, AMERICAN	15	15	0
LITERATURE, BRITISH ISLES	17	16	-1
LITERATURE, GERMAN, DUTCH, SCANDINAVIAN	22	22	0
LITERATURE, ROMANCE	52	65	13
LITERATURE, SLAVIC	7	10	3
MEDIEVAL & RENAISSANCE STUDIES	28	33	5
MUSIC	63	79	16
PHILOSOPHY	102	156	54
POETRY	16	18	2
RELIGION	77	124	47
THEATER	27	30	3

#### Table 3: Clinical Medicine

Category	# Journal in 2005	# Journals in 2010	Growth
ALLERGY	18	24	6
ANESTHESIOLOGY	22	26	4
CARDIAC & CARDIOVASCULAR SYSTEM	77	113	36
CLINICAL NEUROLOGY	147	186	39
CRITICAL CARE MEDICINE	19	23	4
DENTISTRY & ORAL SURGERY	51	77	26
DERMATOLOGY	39	56	17
EMERGENCY MEDICINE	11	23	12
GASTROENTEROLOGY & HEPATOLOGY	49	69	20
GERIATRICS & GERONTOLOGY	28	43	15
HEALTH CARE SCIENCES & SERVICES	55	71	16
HEMATOLOGY	62	66	4
INFECTIOUS DISEASES	46	66	20
INTEGRATIVE & COMPLEMENTARY MEDICINE	10	21	11
MEDICAL ETHICS	7	15	8
MEDICAL INFORMATICS	19	23	4
MEDICINE, GENERAL & INTERNAL	108	158	50
MEDICINE, LEGAL	10	15	5
NEUROIMAGING	14	14	0
NURSING	38	94	56
NUTRITION & DIETETICS	55	74	19
OBSTETRICS & GYNECOLOGY	57	78	21
ONCOLOGY	125	183	58
OPHTHALMOLOGY	45	54	9
ORTHOPEDICS	43	62	19
OTORHINOLARYNGOLOGY	29	40	11
PEDIATRICS	75	108	33
PERIPHERAL VASCULAR DISEASE	52	69	17
PSYCHIATRY	94	128	34
PSYCHOLOGY	61	71	10
PUBLIC, ENVIRONMENTAL & OCCUPATION HEALTH	101	142	41

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Table 3 continued

RADIOLOGY, NUCLEAR MEDICINE & MEDICAL IMAGING	89	113	24
REHABILITATION	26	43	17
RESPIRATORY SYSTEM	33	48	15
RHEUMATOLOGY	22	28	6
SPORT SCIENCES	73	84	11
SURGERY	136	188	52
SUSBSTANCE ABUSE	9	12	3
TRANSPLANTATION	19	25	6
TROPICAL MEDICINE	13	21	8
UROLOGY & NEPHROLOGY	53	68	15

#### Table 4: Engineering Computing & Technology

Category	# Journals in 2005	# Journals in 2010	Growth
ACOUSTICS	28	29	1
AUTOMATION & CONTROL SYSTEMS	48	61	13
COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE	83	110	27
COMPUTER SCIENCE, CYBERNETICS	18	19	1
COMPUTER SCIENCE, HARDWARE & ARCHITECTURE	56	47	-9
COMPUTER SCIENCE, INFORMATION SYSTEMS	93	126	33
COMPUTER SCIENCE, INTERDISCIPLINARY APPLICATIONS	93	97	4
COMPUTER SCIENCE, SOFTWARE ENGINEERING	83	98	15
COMPUTER SCIENCE, THEORY & METHODS	80	98	18
CONSTRUCTION & BUILDING TECHNOLOGY	31	54	23
ENERGY & FUELS	64	80	16
ENGINEERING, AEROSPACE	25	29	4
ENGINEERING, BIOMEDICAL	40	73	33
ENGINEERING, CHEMICAL	115	134	19
ENGINEERING, CIVIL	83	118	35
ENGINEERING, ELECTRICAL & ELECTRONIC	208	248	40
ENGINEERING, ENVIRONMENTAL	37	47	10
ENGINEERING, GEOLOGICAL	23	30	7
ENGINEERING, INDUSTRIAL	33	42	9
ENGINEERING, MANUFACTURING	38	38	0
ENGINEERING, MARINE	7	11	4
ENGINEERING, MECHANICAL	107	124	17
ENGINEERING, MULTIDISCIPLINARY	66	88	22
ENGINEERING, OCEAN	16	14	-2
ENGINEERING, PETROLEUM	24	25	1
IMAGING SCIENCE & PHOTOGRAPHIC TECHNOLOGY	11	18	7
INSTRUMENTS & INSTRUMENTATION	49	61	12
MATERIALS SCIENCE, BIOMATERIALS	14	25	11
MATERIALS SCIENCE, CERAMICS	27	25	-2
MATERIALS SCIENCE, CHARACTERIZATION & TESTING	25	33	8

#### Table 4 continued

MATERIALS SCIENCE, COATINGS & FILMS	17	18	1
MATERIALS SCIENCE, COMPOSITES	22	24	2
MATERIALS SCIENCE, MULTIDISCIPLINARY	177	221	44
MATERIALS SCIENCE, PAPER & WOOD	18	22	4
MATERIALS SCIENCE, TEXTILES	16	21	5
MECHANICS	113	133	20
METALLURGY & METALLURGICAL ENGINEERING	68	74	6
MINING & MINERAL PROCESSING	17	22	5
NUCLEAR SCIENCE & TECHNOLOGY	31	35	4
OPERATIONS RESEARCH & MANAGEMENT SCIENCE	60	76	16
ROBOTICS	12	17	5
TELECOMMUNICATIONS	60	77	17
THERMODYNAMICS	41	51	10
TRANSPORTATION SCIENCE & TECHNOLOGY	22	28	6

#### Table 5: Life Sciences

Category	# Journals in 2005	# Journals in 2010	Growth
ANATOMY & MORPHOLOGY	18	20	2
ANDROLOGY	5	6	1
BEHAVIORAL SCIENCES	44	49	5
BIOCHEMICAL RESEARCH METHODS	55	74	19
BIOCHEMISTRY & MOLECULAR BIOLOGY	275	297	22
BIOLOGY	83	96	13
BIOPHYSICS	68	74	6
CELL & TISSUE BIOLOGY	0	15	15
CELL BIOLOGY	157	175	18
CHEMISTRY, MEDICINAL	36	55	19
DEVELOPMENTAL BIOLOGY	32	39	7
ENDOCRINOLOGY & METABOLISM	94	116	22
GENETICS & HEREDITY	132	155	23
IMMUNOLOGY	116	138	22
MATHEMATICAL & COMPUTATIONAL BIOLOGY	0	38	38
MEDICAL LABORATORY TECHNOLOGY	25	31	6
MEDICINE, RESEARCH & EXPERIMENTAL	75	105	30
MICROBIOLOGY	90	107	17
MICROSCOPY	10	11	1
MULTIDISCIPLINARY SCIENCES	63	64	1
NEUROSCIENCES	207	241	34
PATHOLOGY	74	77	3
PHARMACOLOGY & PHARMACY	200	262	62
PHYSIOLOGY	83	81	-2
REPRODUCTIVE BIOLOGY	25	27	2
TOXICOLOGY	72	85	13

#### Table 6: Physics Chemistry & Earth Sciences

Category	# Journals in 2005	# Journals in 2010	Growth
ASTRONOMY & ASTROPHYSICS	48	56	8
CHEMISTRY, ANALYTICAL	68	75	7
CHEMISTRY, APPLIED	58	71	13
CHEMISTRY, INORGANIC & NUCLEAR	46	44	-2
CHEMISTRY, MULTIDISCIPLINARY	123	147	24
CHEMISTRY, ORGANIC	57	57	0
CHEMISTRY, PHYSICAL	111	125	14
CRYSTALLOGRAPHY	24	25	1
EDUCATION, SCIENTIFIC DISCIPLINES	24	34	10
ELECTROCHEMISTRY	22	27	5
GEOCHEMISTRY & GEOPHYSICS	62	80	18
GEOGRAPHY, PHYSICAL	29	44	15
GEOLOGY	40	55	15
GEOSCIENCES, MULTIDISCIPLINARY	136	166	30
HISTORY & PHILOSOPY OF SCIENCE	36	52	16
INSTRUMENTS & INSTRUMENTATION	49	61	12
MATERIALS SCIENCE, CERAMICS	27	25	-2
MATERIALS SCIENCE, COATINGS & FILMS	17	18	1
MATERIALS SCIENCE, MULTIDISCIPLINARY	177	221	44
MATHEMATICS	193	282	89
MATHEMATICS, APPLIED	167	235	68
MATHEMATICS, INTERDISCIPLINARY APPLICATIONS	62	92	30
MECHANICS	113	133	20
METEOROLOGY & ATMOSPHERIC SCIENCES	50	68	18
MINERALOGY	26	28	2
MULTIDISCIPLINARY SCIENCES	49	64	15
NANOSCIENCE & NANOTECHNOLOGY	0	62	62
OCEANOGRAPHY	48	63	15
OPTICS	57	74	17
PALEONTOLOGY	36	50	14
PHYSICS, APPLIED	84	114	30
PHYSICS, ATOMIC, MOLECULAR & CHEMICAL	32	34	2
PHYSICS, CONDENSED MATTER	63	66	3
PHYSICS, FLUIDS & PLASMAS	24	31	7
PHYSICS, MATHEMATICAL	39	55	16
PHYSICS, MULTIDISCIPLINARY	68	80	12
PHYSICS, NUCLEAR	23	22	-1
PHYSICS, PARTICLES & FIELDS	22	27	5
POLYMER SCIENCE	75	80	5
REMOTE SENSING	13	24	11
SPECTROSCOPY	41	44	3
STATISTICS & PROBABILITY	85	108	23

#### Table 7: Social & Behavioral Sciences

Category	# Journals in 2005	# Journals in 2010	Growth
ANTHROPOLOGY	55	81	26
AREA STUDIES	35	61	26
BUSINESS	64	104	40
BUSINESS, FINANCE	44	81	37
COMMUNICATION	43	66	23
CRIMINOLOGY & PENOLOGY	30	45	15
DEMOGRAPHY	18	24	6
ECONOMICS	181	300	119
EDUCATION & EDUCATIONAL RESEARCH	103	187	84
EDUCATION, SPECIAL	28	35	7
ENVIRONMENTAL STUDIES	54	77	23
ERGONOMICS	13	14	1
ETHICS	30	40	10
ETHNIC STUDIES	9	13	4
FAMILY STUDIES	31	37	6
GEOGRAPHY	39	70	31
GERONTOLOGY	24	29	5
HEALTH POLICY & SERVICES	41	57	16
HISTORY	22	56	34
HISTORY & PHILOSOPHY OF SCIENCE	32	39	7
HISTORY OF SOCIAL SCIENCES	16	29	13
HOSPITALITY, LEISURE, SPORT & TOURISM	0	31	31
INDUSTRIAL RELATIONS & LABOR	16	22	6
INFORMATION SCIENCE & LIBRARY SCIENCE	57	104	47
INTERNATIONAL RELATIONS	53	77	24
LAW	104	132	28
LINGUISTICS	46	150	104
MANAGEMENT	73	156	83
NURSING	33	92	59
PLANNING & DEVELOPMENT	38	51	13
POLITICAL SCIENCE	87	139	52
PSYCHIATRY	91	117	26
PSYCHOLOGY	51	55	4
PSYCHOLOGY, APPLIED	53	68	15
PSYCHOLOGY, BIOLOGICAL	15	15	0
PSYCHOLOGY, CLINICAL	87	100	13
PSYCHOLOGY, DEVELOPMENTAL	54	66	12
PSYCHOLOGY, EDUCATIONAL	80	106	26
PSYCHOLOGY, EXPERIMENTAL	71	81	10
PSYCHOLOGY, MATHEMATICAL	10	12	2
PSYCHOLOGY, MULTIDISCIPLINARY	106	121	15
PSYCHOLOGY, PSYCHOANALYSIS	14	16	2
PSYCHOLOGY, SOCIAL	47	57	10
PUBLIC ADMINISTRATION	26	40	14
PUBLIC, ENVIRONMENTAL & OCCUPATIONAL HEALTH	74	120	46
REHABILITATION	50	61	11
SOCIAL ISSUES	32	36	4

Table 7 continued

SOCIAL SCIENCES, BIOMEDICAL	27	34	7
SOCIAL SCIENCES, INTERDISCIPLINARY	60	92	32
SOCIAL SCIENCES, MATHEMATICAL METHODS	34	44	10
SOCIAL WORK	28	40	12
SOCIOLOGY	97	136	39
SUBSTANCE ABUSE	22	26	4
TRANSPORTATION	14	23	9
URBAN STUDIES	28	36	8
WOMEN'S STUDIES	27	35	8

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