

# **Intellectual Property Experiences in the German Scientific Community**

**A Report by the Project on Science and  
Intellectual Property in the Public Interest**



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# **Intellectual Property Experiences in the German Scientific Community**

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Ali Mushtaq prepared most of the cross-tabulations given in Appendix 3 of this report.

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## Introduction

This report is the culmination of a 2006 survey of Germany-based scientists and other professionals to assess their experiences in acquiring and using or creating intellectual property. Conducted by the American Association for the Advancement of Science (AAAS), the survey was undertaken not only in response to the changing landscape of IP and IP protections in scientific research, but by the uncertainties that have arisen with emerging fields of research and innovation where few precedents exist in terms of IP protections. Those include, for example, the fields of human embryonic stem cell research, genomics, proteomics, pharmacogenomics, and nanotechnology.

The findings presented in this report address as well as raise several important questions about the acquisition and creation of IP in the scientific community and, in what ways—if any—they are affecting the conduct of scientific research: Who in the scientific research community, for example, is acquiring patented technologies covered by some form of IP protection(s)? By what means are those individuals acquiring such technologies? Who is making discoveries or developing technologies eligible for IP protection(s)—and what means are they using to protect their IP? Which professional fields (e.g., the biological sciences, engineering) and which professional sectors (e.g., academe, industry) do those individuals represent? Who is experiencing difficulties in acquiring or using IP for research purposes? Of those who have reported difficulties in acquiring or using IP, what types of difficulties have they encountered and how (if at all) has their research been affected? Moreover, who is experiencing the *most* difficulty in acquiring or using protected technologies? From which professional fields or sectors are they attempting to acquire those technologies? Are scientists who use data from publicly funded projects in their research experiencing difficulty in accessing that data? Are they able to secure access to the published, peer-reviewed literature required for conducting their research, or are they encountering difficulties in doing so? If so, how is their research affected by such difficulties? Of those scientists who are creating IP and placing protections upon it, how and to whom are they disseminating their IP? Ultimately, such questions of whether and how the conduct of scientific research is being affected by IP protections—adversely, beneficially, or both—underscore the timeliness of the findings presented in this report.

This report does not, however, endeavor to interpret the findings of the 2006 German survey. The authors have created this report with the intention to release the results of that survey as quickly as possible, and therefore have not analyzed the cross-tabulations given here. It is their hope that deeper study of the results of the survey will be undertaken in the future.



## Background

In order to inform the reader, a few notes on the specific nature of German law related to IP are given here.

### The German Employee's Invention Act after the 2002 Reform

In 2002 the German Employee's Invention Act was changed. Until then, university professors enjoyed the so-called "professor's privilege." As opposed to other employees at universities and elsewhere, their inventions and any intellectual property rights (IPRs) obtained thereon belonged to the professors themselves and not to the universities. That exemption has now been abandoned and the general rule (inventions made by an employee belong to the employer) now also applies to professors at universities -- with some concessions:

- If a professor makes an invention and wants to publish it, he or she has to inform the university. The university has then four months to decide whether or not the university wants to file a patent on the invention. If the university has no interest in applying for a patent, all rights to the invention belong to the professor. If the university decides to obtain patent protection and starts issuing licenses on the patent, the professor is entitled to a 30 percent share of the gross revenues.
- If the professor does not wish to publish his or her findings, there is no obligation to notify the university about them. In this case, the professor may neither publish nor apply for IPRs on the respective inventions.

In order to make efficient use of their professors' new obligation to notify universities about inventions, German universities have founded so-called IPR Exploitation Agencies. In the beginning, from 2002 to 2005, the Federal State partly funded these agencies. Since the federal funding program was phased out very few IPR Exploitation Agencies have survived. Good examples of efficient agencies are Garching Innovation, the IPR Exploitation Facility of the Max-Planck-Gesellschaft, and ProVendis, a merger of different agencies in North-Rhine-Westphalia that now represents all universities in North-Rhine-Westphalia.

### Research Exemption

The German Patent Act provides a general research exemption. In other words, a German patent does not protect the owner against the use of the underlying technology for research purposes.

### Using Data from Publicly Funded Sources

Germany is one of the very few countries where freedom of science has been established as a constitutional right. Hence, every scientist has the right to decide for him/herself whether her/she wants to publish his/her data and if so, where he/she will publish any results. Public funding bodies have to comply with those constitutional requirements. So, whereas private funding agencies or industrial partners can provide funding to the condition that any data derived from the project is made available to anyone (or nobody), public funding agencies have no such possibility.

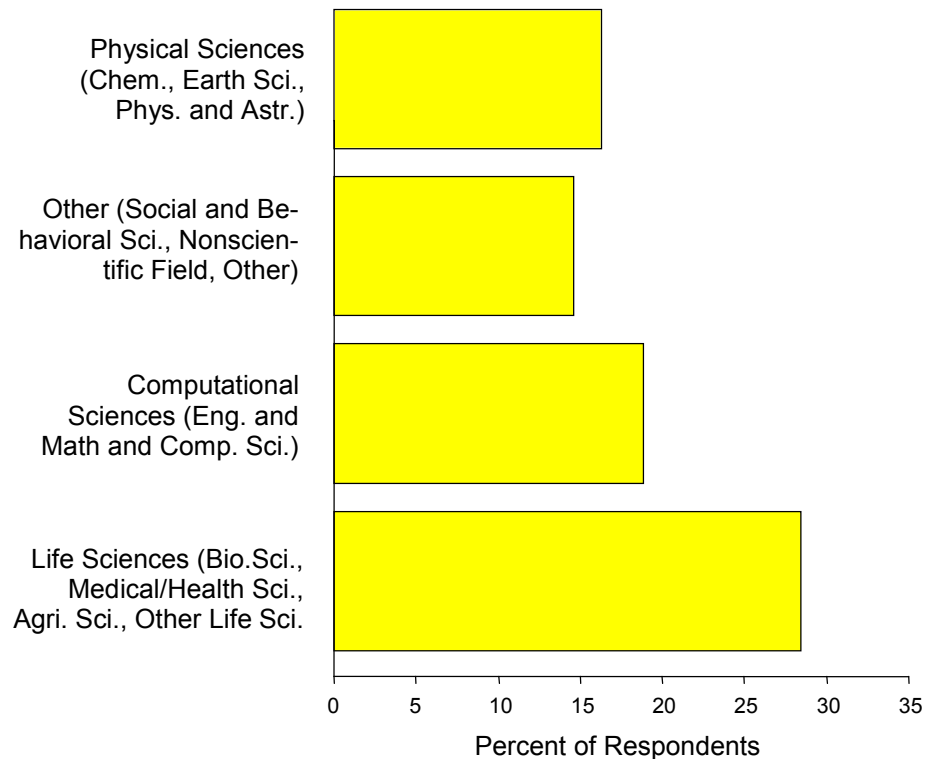
Additionally, the German Patent Act requires that a patentable invention has to be "new," meaning it has not been disclosed yet to a general public.



## Results

### Acquiring Intellectual Property

- One hundred eighty-two out of 931 German respondents (20 percent) stated that they had acquired a patented or otherwise protected technology for use in their work. Respondents working in the fields of engineering (12 out of 43; 28 percent), chemistry (19 out of 65; 29 percent) and the biological sciences (50 out of 172; 29 percent) were the majority of those who obtained such protected technology.



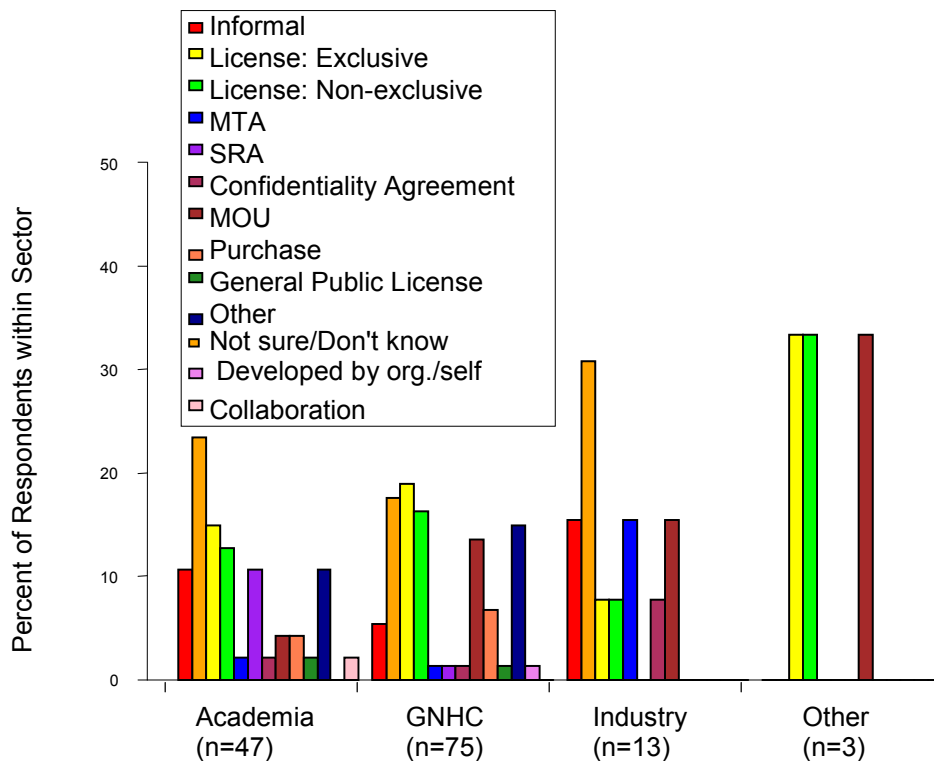
**Figure 1: Percent of Respondents Acquiring Intellectual Property (by Category of Scientist).<sup>1</sup> Source: AAAS-SIPPI 2006 *Effects of Intellectual Property Protections Survey Database*. Based on 931 respondents out of a possible 967.**

- The respondents' most important source for those technologies was industry (87 out of 169; 51 percent), followed by academia (63 out of 169; 37 percent).
- In some academic fields (life sciences other than medicine/health sciences, earth sciences, humanities), the majority of respondents reported that the acquired technology was used strictly as a research tool (131 out of 167;

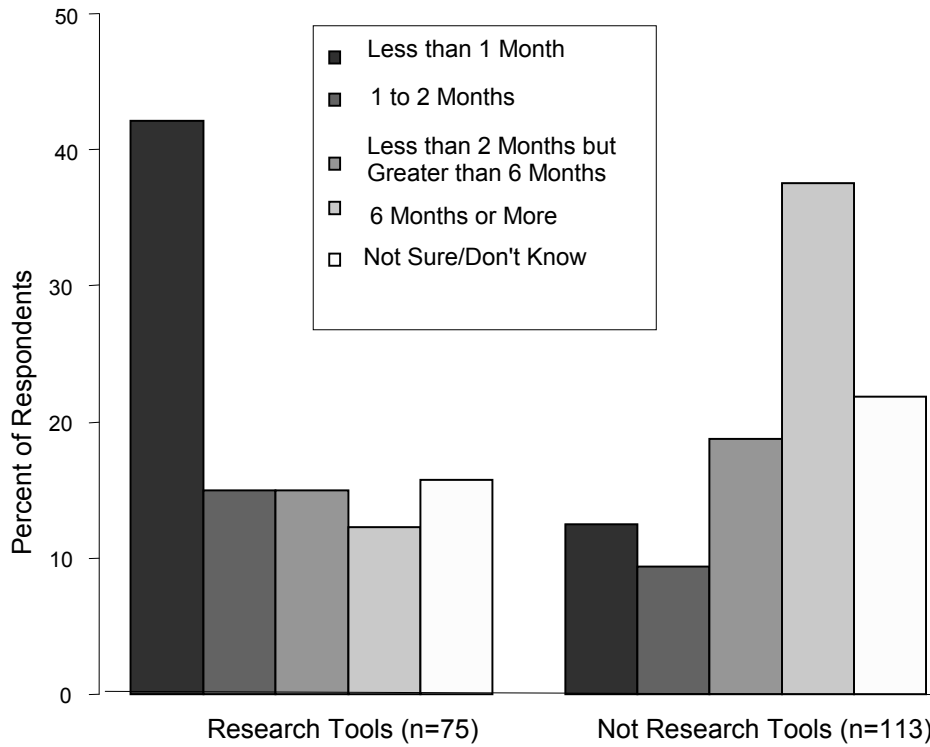
<sup>1</sup> The categories are as follows: *Life Sciences* is comprised of biological sciences, medical/health sciences, agricultural sciences, and other life sciences; *Physical Sciences* is comprised of physical sciences, chemistry, earth sciences, and physics and astronomy; *Computational Sciences* is comprised of engineering and math and computer sciences; and *Other* is comprised of science history, ethics, or philosophy, science publishing or media, other social, behavioral or economic sciences, and non-scientific fields.

78 percent on average) and was not subject of the respondent's research project. The scientific fields with the lowest level of research tool acquisition were math and computer sciences (8 out of 14; only 57 percent) and engineering (3 out of 10; only 30 percent), meaning that the obtained protected technology itself was, in many cases, the subject of research.

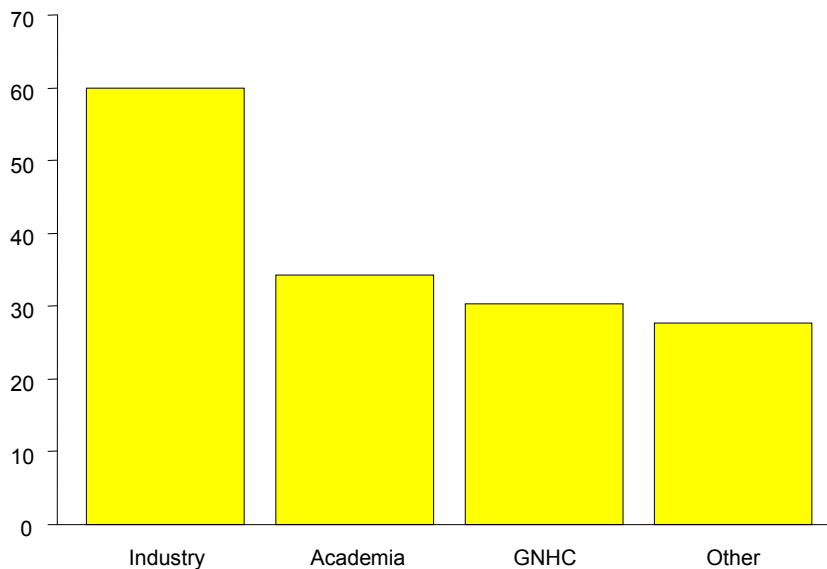
- Thirty-three out of 160 (21 percent) of the acquisitions were transferred via exclusive licenses, 28 out of 160 (18 percent) via non-exclusive licenses, 22 out of 160 (14 percent) via Material Transfer Agreements, 17 out of 160 (11 percent) via purchases and 13 out of 160 (8 percent) via an informal agreement. However, that ordering did not hold across scientific field:
  - Twenty-five percent of the engineering respondents indicated that they acquired IP via an informal agreement. Another 25 percent of engineering respondents acquired IP via an exclusive license, and 17 percent acquired IP via a non-exclusive license.
  - In the area of physics and astronomy, informal agreements seem to be uncommon (zero percent); more respondents in that scientific field reported IP acquisition via an exclusive (19 percent) or non-exclusive (8 percent) license.
  - In the biological sciences, patented technology was mainly acquired via Material Transfer Agreements (34 percent). Eighteen percent of biological science respondents obtained IP via a non-exclusive license, and 16 percent via an exclusive one.
- Acquisitions by academic respondents (18 out of 47; 38 percent) and GNHC respondents (28 out of 79; 35 percent) were mostly completed in less than one month. Five out of nine industry respondents (56 percent) indicated that their acquisitions took 2-6 months.



**Figure 2: Method of Acquisition (by Employment Sector).** Source: AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey Database. Based on 160 respondents out of a possible 182.



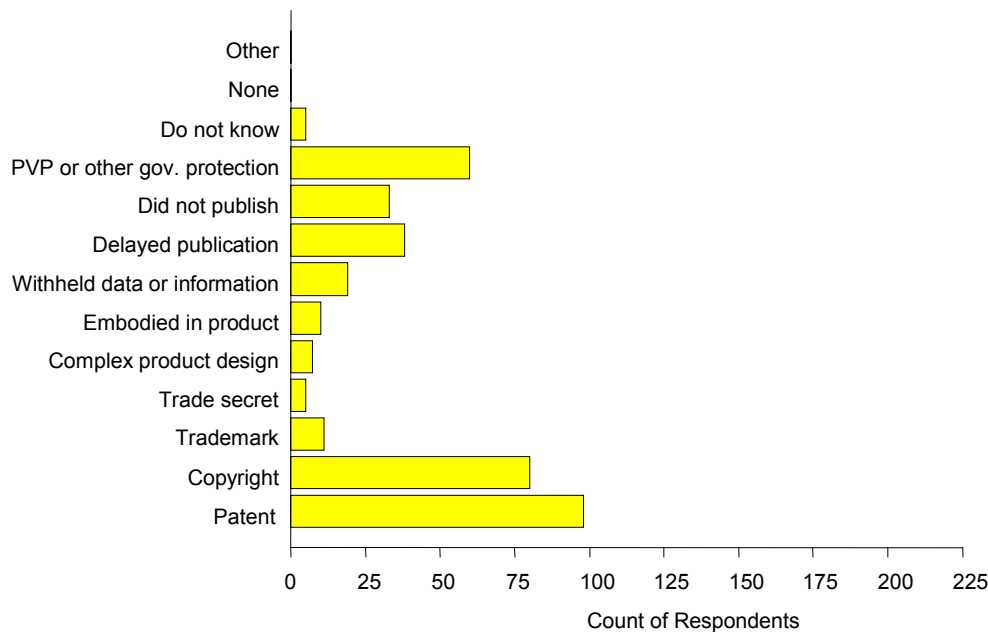
**Figure 3: Time until Acquisition (by Research Tool Status).** Source: AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey Database. Based on 146 respondents out of a possible 182.



**Figure 4: Creation of IP (by Sector of Respondent).** Source: AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey Database. Based on 870 responses out of a possible 967.

## Creating and Protecting Intellectual Property

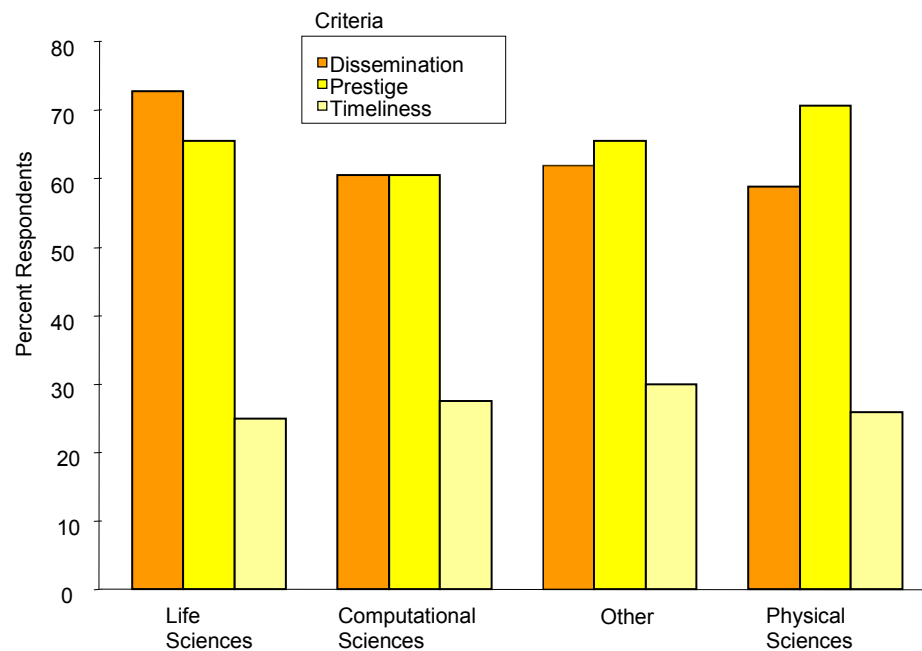
- Two hundred eighty-six of 870 respondents (33 percent) stated that since January 1, 2002 they or their institutions created intellectual property; the highest percentage of respondents that reported creating IP was in the engineering sciences (28 out of 39 respondents; 72 percent).
- Patents (98 out of 276; 36 percent) and copyrights (80 out of 276; 29 percent) were the most utilized legal protection. Twenty-three percent of the respondents chose to withhold the obtained data (10 out of 276; 4 percent), to delay publishing (19 out of 276; 7 percent) or to not publish their findings at all (38 out of 276; 14 percent) in order to protect their intellectual property.



**Figure 5: Method of IP Protection. Source: AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey Database. Based on 276 responses out of a possible 286.**

## Scientific Publishing and Access to Scientific Literature

- Seven hundred forty-seven out of 850 respondents (88 percent) indicated that their scientific work has at some point in time been published.
- Seven hundred two out of 737 (95 percent) of those having published before indicated that their main motivation for doing so was to inform others about their work and results.
- The choice of communication media was governed by this motivation: Most respondents (502 out of 714; 70 percent) claim that the main criteria when choosing how/where to publish their results was to disseminate them to a large and relevant readership.



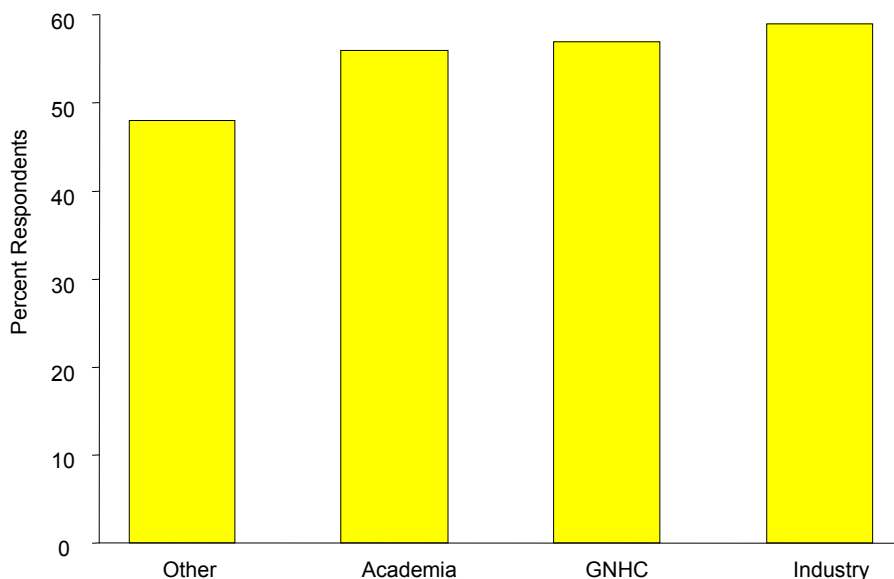
**Figure 6: Three Criteria in Deciding How to Publish (by Professional Field).** Source: AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey Database. Based on 737 respondents out of a possible 747.

### Copyright and Ease of Access to Scientific Literature

- Approximately 85 percent of the respondents indicated that they did not keep copyrights to their latest publication (359 out of 724; 50 percent) or did not know whether they had (256 out of 724; 35 percent). In the academic sector only 39 out of 215 respondents (18 percent) answered that they did keep copyrights to their latest publication (compared to 6 out of 14 respondents from the industrial sector (43 percent)).
- In many, if not most cases scientists seem to be asked to transfer their copyrights to the respective journal (371 out of 473; 78 percent); only 2 percent of the respondents (10 out of 473) claim that they had to transfer copyrights to their work to their hosting institution.
- Although copyrights usually have to be transferred by the scientist to some other institution (journal, university etc.), 326 out of 423 respondents (77 percent) have not experienced any difficulty in the subsequent use of the published data (e.g. by sharing it with colleagues etc.).
- Four hundred fifty-one respondents (54 percent) have not had difficulties in getting access to copyright protected literature; only 265 out of 837 (32 percent) experienced such difficulties. Among the latter group, 150 out of 262 (57 percent) claim that these problems have delayed their research for less than one month (54 out of 262, or 21 percent, claim these problems have delayed their research for more than one month).
- Most scientists (481 out of 832; 58 percent) believe that access to scientific work has become easier over the past three years.
- Only 10 out of 107 respondents (9 percent; for industry respondents, zero percent) used alternative open access licensing models for their most recent publication.

## Access to Data from Publicly Funded Sources

- Four hundred sixty-eight of 821 respondents (57 percent) from all sectors (academia: 139 out of 248, 56 percent; industry: 10 out of 17, 59 percent; GNHC: 288 out of 503, 57 percent) indicate that they have used or tried to use data from publicly funded sources.
- Only 87 out of 465 (19 percent) claimed that they experienced difficulties in getting access to data from publicly funded sources. The highest percent of respondents who have experienced difficulties are to be found in the fields of earth sciences (6 out of 16; 38 percent) and chemistry (9 out of 29; 31 percent).
- Of the respondents that had experienced difficulties in getting access to data, 31 out of 84 (37 percent) mentioned a substantial delay in the transfer of the data, and 31 out of 84 (37 percent) claimed denial of access to data.
- These problems delayed the respondents' work (9 out of 28; 32 percent), the respondents had to reproduce the data by themselves (9 out of 28; 32 percent) or needed to find another source for the data that was a satisfactory substitute (9 out of 28; 32 percent). Eleven out of 28 respondents (39 percent) indicated they had to find another source for the data, but the data they could get from that more cooperative source did not form a satisfactory substitute.
- Eleven of 83 respondents who had difficulties gaining access to publicly funded data (13 percent) describe these negative effects on their work as "serious", whereas the majority only indicate there were "some negative effects" (56 out of 83; 67 percent).
- According to 23 out of 85 respondents (27 percent), the access to publicly funded data has become easier since 1 January 2002; 12 out of 85 (14 percent) claim that it has become more difficult to obtain such data, and 27 out of 85 (32 percent) believe the situation has remained the same.
- When asked for data, 313 out of 454 respondents (69 percent) claim they have not denied access to data they have derived from publicly funded research.



**Figure 7: Use of Publicly Funded Data for Research Purposes (by Sector).** Source: AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey Database. Based on 821 respondents out of a possible 967.

## Appendix 1: Survey Design

### Basic Methodology

The *AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey* was a multinational effort focusing on four specific pools of potential respondents as follows:

- In the United States, a random sample of 8,000 AAAS members were invited to take the survey; details of the sample selection are given below;
- In the United Kingdom, multiple scientific professional societies invited approximately 5,000 scientists in sum to participate;
- In Germany, the approximately 1,600 members of Union of the German Academies of Sciences and Humanities, the employees of the Max Planck Society,<sup>2</sup> and the 1,272 AAAS members who live in Germany<sup>3</sup> were invited to participate; and
- In Japan, the Institute for Future Technology invited a random sample of 5,000 mostly academic scientists to participate in the survey.

The timing for each respondent group was slightly different. For the United States and United Kingdom samples, the same survey instrument was used and the survey was administered to both groups between March and April of 2006. The survey instrument subsequently was modified slightly for use with German respondents, and made available to those respondents between May and July of 2006. The German questionnaire (administered in English) subsequently was translated into Japanese and made available to Japanese respondents between November of 2006 and January of 2007.

The questionnaire was Internet based and self-administered; further details of the questionnaire design for the German survey are given below.

### Questionnaire Design for Germany

The questionnaire design for Germany was subsequent to the questionnaire design for the United States/United Kingdom.

The United States/United Kingdom questionnaire was based on the questionnaire used for the *AAAS-SIPPI 2005 Patent Survey*.<sup>4</sup> That survey was intended as a pilot for the larger *2006 Effects of Intellectual Property Protections Survey* described here. Two sections of questions were added to the pilot: a section on experiences with publications, initially written by Stephen Hansen, and a section on experiences with publicly funded data, initially written by Paul Uhler of the National Academies.

After a thorough study of the results of the 2005 survey, as well as an in-house review of the new questions for the 2006 survey, the questions were mounted on the survey Web site by the staff at the Social and Economic Sciences Research Center of Washington State University. The survey instrument was then thoroughly reviewed again by AAAS staff for accuracy of skip patterns, grammar and clerical errors, and quality of questionnaire design.

Because the 2006 questionnaire was significantly expanded compared to the 2005 pilot survey, AAAS staff felt further testing was warranted. Therefore, as a field test for the questionnaire, it was self-administered by twelve volunteer scientists who sub-

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<sup>2</sup> The Max Planck Society is comprised of 75 institutes and 3 additional research facilities. Together, they are staffed by 12,000 employees and 10,000 junior scientists and guest scientists. The e-mail invitation to participate in the *2006 Effects of Intellectual Property Protections Survey*, however, was distributed to each of the institute and research facility organizational heads, and it was their decision whether to forward that invitation to their employees. As such, the true “sample size” for the German phase of the *2006 Effects of Intellectual Property Protections Survey* can not be easily determined.

<sup>3</sup> That is, the 1,272 AAAS members as of November 17, 2005 with valid e-mail addresses whose primary residence is in Germany.

<sup>4</sup> Hansen, S., A. Brewster, J. Asher, and M. Kisielewski. 2005. *The Effects of Patenting in the AAAS Scientific Community*. (Washington, DC: American Association for the Advancement of Science).

sequently reported on their experiences taking the survey to AAAS staff. Those experiences were compiled and further edits of the survey instrument were made. A final round of quality checking ensued before the survey was made available to respondents in February of 2006.

After the U.S./U.K. survey was implemented, preparations were made to edit the survey instrument, if required, to make it more suitable to a German audience. Even though the German survey was to be in English, SIPPI staff felt that cultural differences might affect the German respondents' understanding of the questionnaire. For that reason, a series of four cognitive interviews of expatriate German scientists in the greater Washington DC area was implemented, after which minor changes were made to the survey to enhance respondent understanding. The modified questionnaire was then tested via another series of cognitive interviews, again of expatriate German scientists in the greater Washington DC area. The second series of interviews confirmed that the edits increased respondent understanding of the survey questionnaire, and the German survey commenced shortly thereafter.

Further details of the cognitive interviewing process will appear in a separate publication.

### Survey Logistics for the German Sample

Sampled individuals were invited to participate in the survey via an e-mail message. In order to reduce the possibility of single respondents answering the survey multiple times, or response from scientists that were not part of the sample, an individualized code was required to enter the survey. In the case of the German respondents, sampled individuals were assigned a code upon their first arrival at the survey Web site.

In the case of the German sample, outreach to potential respondents was limited. AAAS staff did not have direct access to the e-mail addresses of the sampled individuals and relied on individual professional organizations to forward e-mail invitations and reminders for the survey.

### Sample Design for Germany

The sample frame for the survey was comprised of members of the following professional organizations: Union of the German Academies of Sciences and Humanities, the Max Planck Society, and the AAAS members with valid e-mail addresses residing in Germany on November 17, 2005. All such members were invited to participate in the survey.

### Response Rates for the German Sample

The exact response rate for the German survey sample is not calculable, as the exact number of German scientists invited to take the survey is not known. Within the pool of 967 respondents, response rates for individual questions varied between 50 percent and 100 percent. Further details of item response rates for questions are given in Appendix 3 of this report.

### A Note on Interpretation of Statistics

There are several important caveats related to population coverage and response rates that need to be accounted for in the interpretation of the statistics and percentages given in this report.

1. Population Coverage: Please note that the statistics reported here are based on a non-random sample of scientists with German addresses who were members of one of the participating professional societies in May of 2006. Therefore, please note the results of the study do not represent German scientists in general. Additionally, the statistics and percentages presented in this report do not even represent the membership of the participating professional societies due to the low *response rate* to the survey.

Differential Response Rates: A low response rate can cause bias in subsequent survey estimates due to differences between the population of sampled units that choose to respond and the population of sampled units that do not choose to respond. For example, a scientist that has had no experiences related to intellectual property might be less inclined to participate in a survey on patenting than a scientist that has had experiences that he or she wishes to share.

Interpretation of Statistics: As a result of these complications, *the only population represented by the statistics and percentages given here is the population of the respondents themselves.* That does not mean that the data collected by the German portion of the *2006 Effects of Intellectual Property Protections Survey* are of no use; while the respondents to that survey can not and should not be said to represent any particular wider group of scientists, their answers to the survey, taken in aggregated form, can still inform policy decisions. For example, any reported experiences of being denied access to publicly funded data might indicate a problem regardless of *how many* of those experiences are reported.

2. Please note that there are no measurements of sampling or nonsampling error included with the percentages and statistics outlined in this report (i.e., confidence intervals or margins of error). Such measurements of error are appropriate when a statistic is being estimated for a wider population from a sample; then the measurement of error informs the reader about how close the statistic might be to the value for the entire population. In this case, we are not interpreting the statistics and percentages given in this report as representing a larger population than the respondents to the survey.
3. As noted above, the survey instrument for the *AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey* was extremely complicated, involving multiple skip patterns over the course of 62 questions. As such, the interpretation of percentages given in this document must be made with care in order to ensure that the correct reference population is being used.

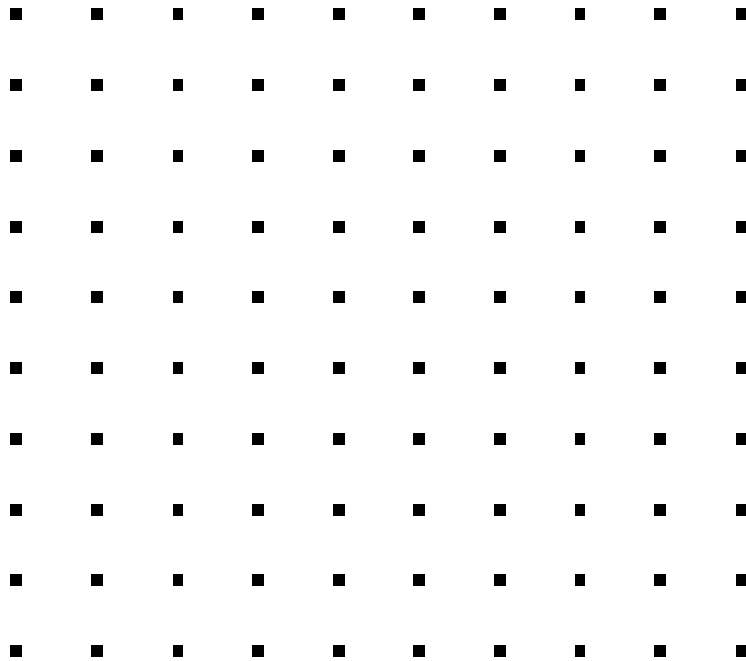
An example may clarify the issue. Note that 3 percent of the respondents to Question 12 of the German *AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey* report abandoning their research due to difficulties in obtaining intellectual property. However, the only respondents that had the option to answer Question 12 were those that first answered “yes” to Question 3 (“Since 1 January 2002, have you/your institution\* acquired any patented technologies, materials or methods (technology) to use in your work that were covered by some form of intellectual property protection?”) and then answered “yes” to Question 10 (“Since 1 January 2002, did you experience any difficulties while attempting to acquire any patented technologies?”).

To calculate the overall percentage of respondents that reported abandoning their research due to a problem in obtaining intellectual property, we note:

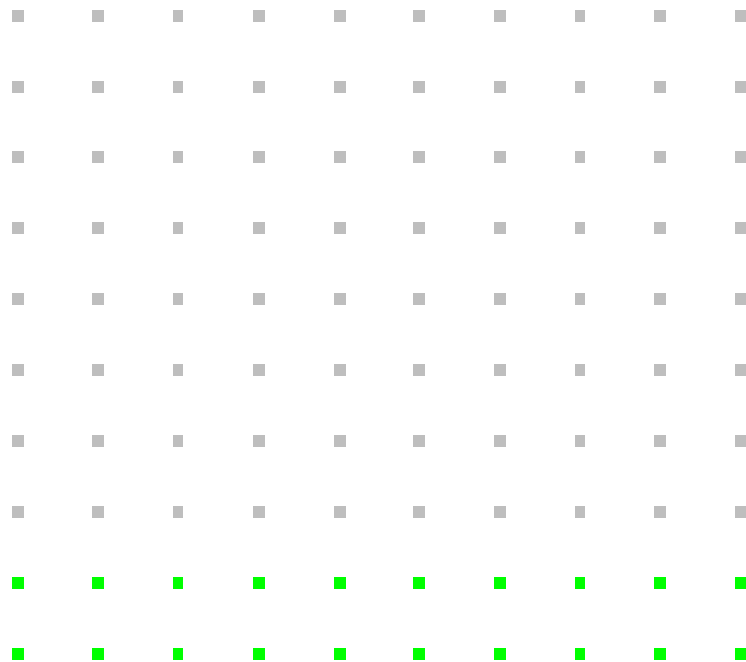
- 182 out of 931 respondents (20 percent) answered Question 3 “yes”
- 33 out of 144 respondents (23 percent) answered Question 10 “yes”
- 1 out of 31 respondents (3 percent) answered Question 12 by stating their research had to be abandoned.

In order to determine what percentage of respondents *overall* reported abandoning their research due to a problem in obtaining intellectual property, we multiply those three percentages together, obtaining an answer of approximately 0.1 percent.

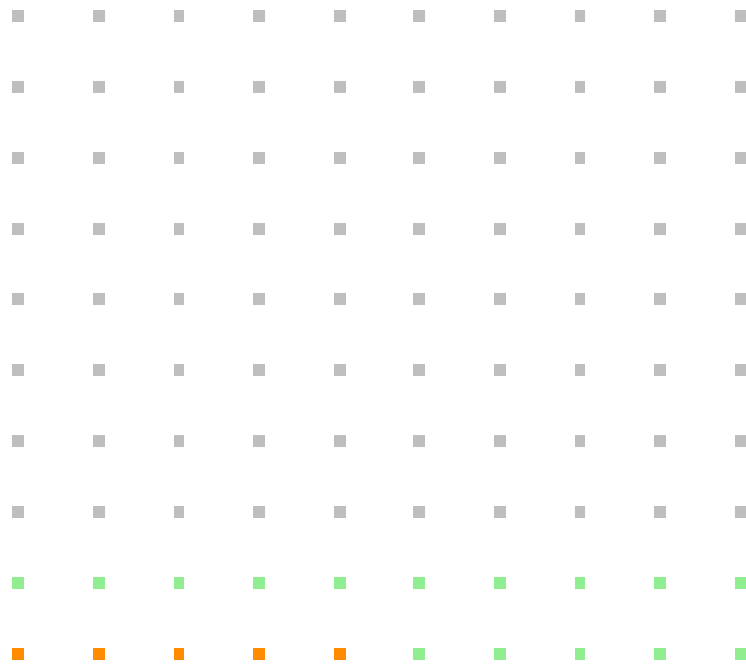
This example is explained graphically in Figures 8-11.



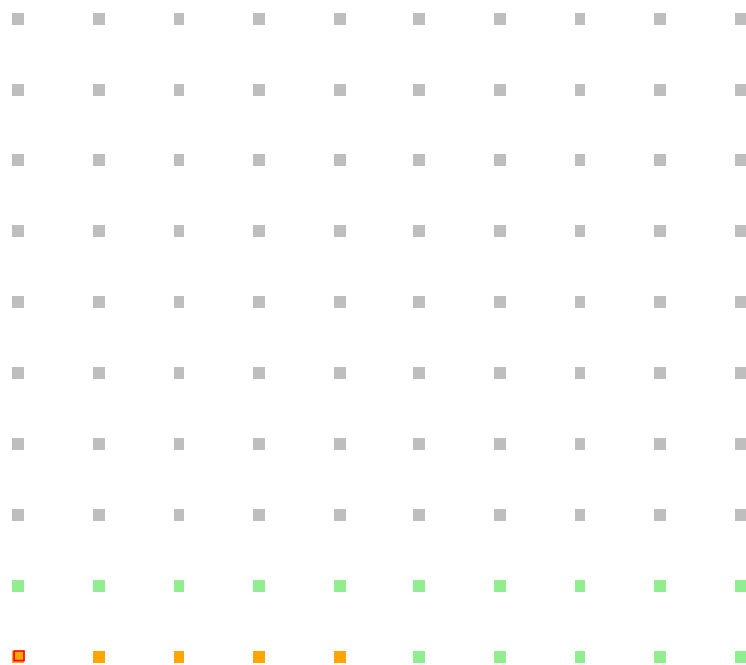
**Figure 8:** Let the 967 respondents to the German survey be represented by the 100 dots above. In other words, let each of these dots represent 1% of the German survey respondents.



**Figure 9:** For every 100 respondents to the German survey, about 20 (the green dots above) report acquiring intellectual property. In other words, 20% of the German survey respondents report IP acquisition.



**Figure 10:** For every 100 respondents to the German survey, about 5 (the orange dots above) report having difficulties during IP acquisition. In other words, 5% of all respondents, or 23% of the respondents that report IP acquisition, fall into this pool.



**Figure 11:** Finally, for every 100 respondents to the UK survey, less than 1 (outlined in red) reports having abandoned research due to those difficulties. In other words, .1% of all respondents, or less than 1% of the respondents that report IP acquisition, fall into this pool.



## Appendix 2: Survey Instrument

*Please note that the survey instrument for the German sample of the AAAS-SIPPI 2006 Effects of Intellectual Property Protections Survey was administered in English; also please note that the survey instrument for the German sample is not identical to the survey instrument for the U.S./U.K. sample for that survey.*

*Underlining indicates a modification or creation of a category during the cleaning of the data in the “other” category.*

### Q01: In what field of science do you (or if retired/on leave, did you) primarily work?

Biological sciences  
 Medical/health sciences  
 Agricultural sciences  
 Other life sciences  
 Physical sciences  
 Chemistry  
 Engineering  
 Earth sciences  
 Physics and astronomy  
 Math and computer sciences  
 Science history, ethics, or philosophy  
 Science education or administration  
 Science publishing or media  
 Other social, behavioral or economic sciences  
 Non-scientific Field  
 Other

### Q02: Which of these would you describe as your main job function (check all that apply)?

Academic teaching and research  
 Scientific research (non-academic)  
 Academic administration (e.g., Dean, Department Head)  
 Administration/Management (University/corporate/government)  
 Student  
 Development (or Finance)  
 Funding  
 Medical services  
 Product/process engineering (including software)  
 Manufacturing/processing  
 Quality control/assurance/regulatory/safety/analysis  
 Purchasing  
 Journalism (writing/editing/publishing)  
 Law/legal services/forensics  
 Policy/ethics  
 Consulting  
 Intellectual property management (e.g., technology transfer)  
 Retired/on leave  
 Other:  
Sales/Marketing/Product support/Business Improvement

**Q03: Since 1 January 2002, have you\* acquired any patented technologies, materials or methods (technology) to use in your work that were covered by some form of intellectual property protection?**

*\*by “you”, we mean the following:*

- *If you are self-employed, you personally.*
- *If you are employed by a university, company, government, etc., please answer within the context of your employment since 1 January 2002 (i.e., technology acquired under the sponsorship of your employer(s) that you used in your work).*
- *If you manage intellectual property, then technology acquired by your university, company, etc.*

Yes → Go to question 04

No → Go to question 14

Not sure/don't know → Go to question 14

**Q04: Please specify the scientific field of the last patented technology\* you acquired since 1 January 2002:**

*\*Note: Please specify the scientific field in which the patented technology was developed, even if it was used for research in a different field. If more than one patented technology was acquired at the same time, please select one and answer the question in relation to that technology.*

Biological sciences  
Medical/health sciences  
Agricultural sciences  
Other life sciences  
Physical sciences  
Chemistry  
Engineering  
Earth sciences  
Physics and astronomy  
Math and computer sciences  
Science history, ethics, or philosophy  
Science education or administration  
Science publishing or media  
Other social, behavioral or economic sciences  
Non-scientific Field  
Other:

**Q05: Who was the source of the last patented technology you acquired?**

Academe  
Industry  
Government/Inter-governmental organization  
Nonprofit/Nongovernmental organization  
Other:  
Not sure/Don't know  
Individual/self outside of employment

**Q06: Was the last patented technology you acquired used strictly as a research tool (meaning that it was not the subject of the research)?**

Yes

No

**Q07: Please indicate which of the following methods was used in the acquisition of this patented technology.**

Informal (no official agreement)  
 License: Exclusive  
 License: Non-exclusive  
 Material Transfer Agreement (MTA)  
 Sponsored Research Agreement (SRA)  
 Confidentiality Agreement  
 Memorandum of Understanding (MOU)  
 Purchase  
 General Public License (GPL, Open Source Software)  
 Other:  
 Not sure/Don't know  
Developed by organization/self  
More than one of the above  
Donation  
Acquired through acquisition of company  
Some type of collaboration/cooperative agreement

**Q08: Please indicate which, if any, terms were involved in the assignment or licensing of the last patented technology you acquired (check all that apply):**

Research or experimental use exemption maintained by licensor  
 Humanitarian use exemption  
 Limitation on use (field of use restriction)  
 Restrictions on patenting (research use only)  
 Restrictions on redistribution  
 Restrictions on publication and dissemination of research results  
 Claims on future products, through reach through royalties, future license rights, or similar claims  
 Request for authorship  
 None  
 Other  
 Not sure/don't know  
More than one of the above

**Q09: How long did it take to acquire this patented technology?**

Less than one month  
 1 to 2 months  
 More than two months, but less than 6 months  
 Six months or more  
 Not sure/Don't know

**Q10: Since 1 January 2002, did you experience any difficulties while attempting to acquire any patented technologies?**

Yes → Go to question 11  
 No → Go to question 14

**Q11: Thinking back to the last time since 1 January 2002 that you had difficulties acquiring a patented technology, what were the reasons (check all that apply)?**

- Necessary patents were/are not licensable
- Request for license denied
- Overly complex patent licensing negotiations
- Licensing negotiations broke down
- Individuals royalties were too high
- Royalties required for multiple patents
- Unable to determine the IP status of the technology
- Other:
  - Took too long to obtain technology
  - No response from IP owner to request
  - Problems with Patent Office
  - Employer rules

**Q12: Thinking back to the last time since 1 January 2002 that you had difficulties acquiring a patented technology, ultimately, how was your research affected by these difficulties?**

- It was delayed → Go to question 14
- It had to be changed → Go to question 13
- It had to be abandoned → Go to question 14
- Effect not yet known → Go to question 14
- Not at all → Go to question 14
- Other → Go to question 14

**Q13: As a result of having to change your research, did you do any of the following (check all that apply):**

- Used different technologies/tools
- Attempted to invent around patented technology
- Changed geographic location for the work (to another country)
- Changed project goals
- Worked around issue in another way
- Other

**Q14: Does your current work involve less or more licensing of technology than it did prior to 1 January 2002?**

- Less
- About the same
- More
- Not sure
- Don't know, only active in my field since:
- Not applicable

**Q15: Since 1 January 2002, have you\* created any technologies that you/your institution would consider intellectual property?\***

*\*by "you", we mean the following:*

- *If you are self-employed, you personally.*
- *If you are employed by a university, company, government, etc., please answer within the context of your employment (i.e., intellectual property developed under the sponsorship of your employer(s) to which you have significantly contributed).*
- *If you manage intellectual property, then intellectual property of your university, company, etc.*

**\*\*By intellectual property, we are referring to property, created through intellectual and/or discovery efforts, that is generally protectable under patent, trademark, copyright, trade secret, agreements, or other laws.**

- Yes → Go to question 16
- No → Go to question 24

**Q16: Which of the following approaches were used in protecting your last technological innovation (check all that apply)?**

- Patent
- Copyright
- Trademark
- Trade secret
- Complex product design
- Embodied in product (e.g., software in machinery)
- Withheld data or information
- Delayed publication
- Did not publish
- None
- Other
- Do not know
- Plant Variety Protection or other government protection not listed above

**Q17A: Since 1 January 2002, how many patents have been submitted (or are pending) for your technical innovations? (If you don't know, please leave blank.)**

Respondents could write in their answer

**Q17B: Since 1 January 2002, how many patents have been issued for your technical innovations? (If you don't know, please leave blank.)**

- Don't Know → Go to question 24
- 0 → Go to question 24
- 1 or more → Go to question 18

*Of the patents that have been issued since 1 January 2002, we would like to ask you to please answer questions 18-23 in regards to the last patent received by you. By "received by you", we mean patents issued directly to you if you are self-employed; patents issued to your employer to which you significantly contributed if you are employed by a university, company, government, etc.; and patents issued to your organization if you manage intellectual property.*

**Q18: What was the primary field for your last patent (check only one)?**

- Biological sciences
- Medical/health sciences
- Agricultural sciences
- Other life sciences
- Physical sciences
- Chemistry
- Engineering
- Earth sciences
- Physics and astronomy
- Mathematics and computer science
- Social, behavioral and economic sciences
- Non-scientific field
- Other:

**Q19: Would you consider the technology protected by your last patent a technology whose value is wholly or partially in its use for conducting research (e.g., as a research tool or to enable technology)?**

- Yes
- No
- Not sure/don't know

**Q20: Please rate how important applying for and/or acquiring your last patent was to you (or, if the patent was applied for by your employer, to your employer) with respect to each of the following:**

**Not at all important**  
**Slightly important**  
**Somewhat important**  
**Very important**

- A. Acquiring venture capital
- B. Cooperating with other institutions
- C. Mergers with other institutions
- D. Acquiring public R&D funding
- E. Acquiring private R&D funding
- F. Generating licensing income
- G. Timing of scientific publications
- H. Number of scientific publications
- I. Improving your or your institution's technological portfolio
- J. Improving your or your institution's academic reputation
- K. Improving your or your organization's negotiations (e.g., cross licensing or joint ventures)
- L. Protecting own technology from imitation
- M. Preventing competitors' patenting and application activities
- N. Improving R&D cooperation
- O. Other concerns

**Q21: Was the technology protected by your last patent disseminated to others in any way?**

- Yes → Go to question 22
- No → Go to question 23
- Not sure/don't know → Go to question 24

**Q22: Please indicate how the technology protected by your last patent was disseminated:**

- Shared informally (no official agreements) → Go to question 24
- Licensed exclusively → Go to question 22A
- Licensed non-exclusively → Go to question 22D
- Donated/given for free → Go to question 24
- Placed in patent pool or consortia → Go to question 24
- Used in cross-licensing agreements → Go to question 24
- Published in scientific journal/conference → Go to question 25
- Sold the technology → Go to question 24
- Other → Go to question 24

**Q22A: Who was the recipient of the technology protected by your last patent (select only one)?**

- Academia
- Industry
- Government
- Nonprofit
- Other

**Q22B: How easy or difficult was it to license the technology protected by your last patent?**

- Very easy
- Easy
- Neither easy nor difficult
- Difficult
- Very difficult
- Don't know

**Q22C: In setting the licensing terms for the technology protected by your last patent, did you maintain a (check all that apply):**

Research or experimental use exemption that allowed you or others to continue to conduct work on or with the technology for research purposes → Go to question 24

Humanitarian use exemption that *allowed for the development of and/or the transfer of the technology to developing countries* → Go to question 24

Neither → Go to question 24

Not sure/don't know → Go to question 24

**Q22D: Who were the recipients of the technology protected by your last patent (select all that apply)?**

Academia

Industry

Government

Nonprofit

Other

**Q22E: In setting the licensing terms for the technology protected by your last patent, did you maintain a (check all that apply):**

Research or experimental use exemption that allowed you to continue to conduct work on or with the technology for research purposes → Go to question 24

Humanitarian use exemption that *allowed for the development of and/or the transfer of the technology to developing countries* → Go to question 24

Neither → Go to question 24

Not sure/don't know → Go to question 24

Does not apply → Go to question 24

**Q23: Which ONE of these is the main reason that you have not disseminated the technology protected by this patent?**

You (or your organization) planned/are planning to conduct future research with the technology

You (or your organization) were/are developing or commercializing the technology yourself

You (or your organization) wanted/want to block competitors

Precluded by an agreement

Other:

**Q24: Has your scientific work ever been published?**

Yes → Go to question 25

No → Go to question 34

Not sure/don't know → Go to question 34

*We would like to ask you some questions relating to the last material you published.*

**Q25: Regarding your latest publication, why did you choose to publish this material (check all that apply)?**

To inform others about your work and results

To increase prospects for promotion

To gain credits for academic advancement, etc. (e.g., Research Assessment Exercise, RAE)

To gain/justify research funding

To get feedback from reviewers and readers

To document the work in an archival way

To prevent others from acquiring IP protections

Other:

Gain investment capital/promote commercial product

Duty/other's choice/invitation

**Q26: Regarding your latest publication, who published this material?**

- Myself or my department
- My organization
- Conference organizer
- Journal or proceedings publisher
- Professional association (other than your own organization)
- National (government) library or other government office
- Placed in a freely accessible archive
- Placed in a commercial archive
- Other
- (Commercial Publishing Group (including Commercial University Presses))

**Q27: On which criteria did you base your choice when choosing how/where to publish your latest publication (check all that apply)?**

- Prestige; it is on a shortlist of approved journals (promotion, funding)
- Dissemination; large circulation, relevant readership
- Timeliness; short time from submission to publication
- Availability; article would be available for free on the Web
- Ease of retrieval; journal is indexed in commercial or open access database
- Other:
  - Not my choice/only one choice/invited/choice of others
  - Focus of journal/appropriateness of article for specific journal
  - Where article most likely/easily accepted

**Q28: Did you or your coauthor(s) keep the copyrights to your latest publication?**

- Yes → Go to question 29
- No → Go to question 30
- Not sure/don't know → Go to question 32

**Q29: Did you use alternative open access licensing models (e.g., Creative Commons) for your latest publication?**

- Yes
- No
- Not sure/don't know

**Q30: Were you or your coauthor(s) required to transfer copyright of your latest publication to any of the following (check all that apply)?**

- Your organization
- Publishing organization or journal
- Sponsoring organization
- I was not required to transfer copyright
- Other:
  - Not sure/don't know
  - Federal work, not copyrightable

**Q31: As a result of transferring copyrights, have you experienced difficulty using your latest published material subsequently, e.g., sharing with colleagues, posting on a Web site, etc.?**

- Yes
- No
- Not applicable
- Not sure/don't know

**Q32: Was your latest publication also placed in an electronic bibliographic service or index?**

- Yes → Go to question 32A
- No → Go to question 33
- Not sure/don't know → Go to question 33

**Q32A: Was the full text of your latest publication placed in a:**

National/governmental library (e.g., PubMed, Medline)

Freely accessible archive

Commercially accessible archive

Other:

None of the above

Don't Know**Q33: Since 1 January 2002, in order to protect your work, have you ever (check all that apply) :**

Not published your research

Published incompletely

Delayed publication

Maintained copyright control

Instituted various legal devices (for example, contracts or End-User License Agreements)

Used technological devices (Digital [Rights] Management tools (DRMs) or other smart software, etc.)

Other:

None of the above

Filed for patentNot Applicable**Q34: Since 1 January 2002, have any difficulties associated with gaining access to or disseminating copyrighted works (membership fees, subscriptions, etc.) had an impact on your work?**

Yes → Go to question 35

No → Go to question 36

Not sure/don't know → Go to question 36

**Q35: Problems associated with accessing scientific literature had the following effect(s) on your work (check all that apply):**

I have not had problems associated with accessing scientific literature

There were no effects on my research

They delayed my research less than one month

They delayed my research for one month or more

I had to change the research approach

I had to abandon my research project

There were other effects on my research. Please explain.

Loss of research funds to pay for access or to duplicate workLess background research doneUnspecified delay of work**Q36: Over the past (3) years, have you used open access (freely accessible) publications:**

Not at all

Less frequently than before three years

About the same as before three years ago

More frequently than before three years ago

Don't know, only active in research since \_\_\_\_\_ (enter year here)

Not sure/don't know

**Q37: Has your access to the scientific literature (in general) over the past three years become:**

Easier

Is about the same

More difficult

Much more difficult

Don't know, only active in research since \_\_\_\_\_ (enter year here)

Not sure/don't know

*The following questions concern your experiences with access to and use of data from publicly funded sources. By “data”, we mean numeric or factual data that are part of a larger dataset or database. By “publicly funded sources” we mean data produced by a government entity or entirely with government funding in an academic or nonprofit institution. (Note: For some responses you are requested to provide a brief explanation. Please provide as much detail as you consider appropriate.)*

**Q38. Since 1 January 2002, in your work, have you used (or tried to use) data from publicly funded sources (that you yourself did not produce)?**

Yes → Go to question 39

No → Go to question 48

**Q39: Since 1 January 2002, have you experienced any difficulties in obtaining data from publicly funded sources?**

Yes → Go to question 40

No → Go to question 44

Not sure/don't know → Go to question 44

**Q40: Thinking back to the last time you had difficulty in obtaining data from publicly funded sources, which if any of the following difficulties did you experience (check all that apply)?**

There was a substantial delay in the transfer of the requested data → Go to question 43

Legal terms and conditions were problematic → Go to question 43

Costs were high. If so, how much did the data cost? → Go to question 43

Other difficulties in obtaining the data. Please describe briefly: → Go to question 43

Access was denied → Go to question 41

Technical Difficulty in Access/Difficult to Locate → Go to question 43

**Q41: Thinking back to the last time you had difficulty in obtaining data from publicly funded sources, the following reasons were given for denying your request for access to data from a publicly funded source (check all that apply):**

No reason was given

Results based on those data were not yet published by the producer of the data

Results based on those data had been published, but the data were withheld anyway

Data were produced in support of proprietary research

Period of exclusive use under the data producer's research grant or contract had not yet expired

Data only available to researchers in a specific research program, in which you were not a participant

Your uses of the data would be proprietary

Data only available to researchers in a specific country, of which you were not a citizen

Data were classified as secret or sensitive by the government and you did not have the appropriate security clearance

Data could not be disclosed in order to protect the privacy of human subject(s)

Producer of the data stated that the rights in the data could not be adequately protected

Other reasons. Please explain:

Not applicable

**Q42: Thinking back to the last time you had difficulty in obtaining data from publicly funded sources, the denial of access to the data that you were requesting had the following effect(s) on your research/work (check all that apply):**

There were no effects on my research/work

It delayed my research/work less than one month

It delayed my research/work by one month or more

I had to produce similar data myself or within my research group

I had to find another source for data that was a satisfactory substitute

I had to find another source for data that was not a satisfactory substitute

I had to change the research/work approach

I had to abandon my research/work project

There were other effects on my research/work. Please explain:

**Q43: Thinking back to the last time you had difficulty in obtaining data from publicly funded sources: overall, difficulties in obtaining data from a publicly funded source had:**

- Serious negative effect(s) on my research/work
- Some negative effects(s) on my research/work
- No effect(s) on my research/work
- Some positive effect(s) on my research/work
- Serious positive effect(s) on my research/work
- Not applicable
- Not sure/don't know

**Q44: In your view, how has the situation changed since 1 January 2002, in terms of obtaining access to data from publicly funded sources?**

- It has become easier to obtain data from publicly funded sources
- It has become more difficult to obtain data from publicly funded sources
- The situation has remained about the same
- Don't know, only active in research since: \_\_\_\_\_ (enter year here)
- Don't know

**Q45: Since 1 January 2002, have you denied requests from others for data you have produced with funding from public sources?**

- I did not produce any data using public funding during this time period
- No, I have not denied access to the data I produced from my publicly funded research
- No, I have not denied access to the data I produced from my publicly funded research, but I placed certain conditions on access to those data. If so, please explain:
- No, I have not denied access to the data I produced from my publicly funded research, but I placed certain conditions on the use of those data. If so, please explain:
- Yes, I have denied access to the data I produced from my publicly funded research. If so, please explain:
- Not sure/don't know

**Q46: Since 1 January 2002, have you experienced difficulties in using data from publicly funded sources (check all that apply)?**

- I have not experienced difficulties in using data from publicly funded sources → Go to question 48
- The data had scientific deficiencies → Go to question 47
- The data had technical problems → Go to question 47
- The data had legal proprietary restrictions on re-use based on national legislation (e.g., database protection legislation) → Go to question 47
- The data had legal proprietary restrictions on re-use based on funding agency regulations → Go to question 47
- The data had legal proprietary restrictions on re-use based on licensing terms → Go to question 47
- The legal restrictions on re-use were enforced by technological means → Go to question 47
- There were other difficulties in using the data. If so, please explain: → Go to question 47

**Q47: Difficulties in using data from a publicly funded source have had:**

- Serious negative effect(s) on my research
- Some negative effects(s) on my research
- No effect(s) on my research
- Some positive effect(s) on my research
- Serious positive effect(s) on my research
- Not applicable
- Not sure/don't know

**Q48A: We would like to learn about your opinion/view on technologies owned by others in your area of work. Please indicate how strongly you agree with the following statements by rating each of them on the following scale:**

- Haven't thought much about that**
- Disagree strongly**
- Disagree somewhat**
- Neither agree nor disagree**
- Agree somewhat**
- Agree strongly**

- A. Intellectual property rights provide incentives to invent and make discoveries.
- B. Intellectual property rights impair the free and open exchange of material and/or research results.
- C. Technologies owned by others are easily exchanged through licensing and material transfer agreements.
- D. Obtaining access to technologies owned by others often involves contractual restrictions on publications that cause significant constraint[s] on academic freedom.
- E. Access to technologies owned by others has improved over the past 5 years.
- F. Overall, intellectual property protections are having a POSITIVE impact on my conduct in science.

**Q49: Thank you for responding to this survey so far. We have just a few more questions for you about you and your place of work. Please respond to these questions, as your participation will allow us to examine differences in experiences with intellectual properties in different countries, work settings, etc.**

**In what type of institution is your main employment?**

- School/university
- Industry/corporation
- Public research center
- Hospital/health services
- Law firm/forensics
- Publishing/media
- Nonprofit agency or NGO
- Government or IGO
- Self-employed/consultant
- Retired/on leave/not currently employed
- Other:

**Q50: In which country do you primarily conduct your research/work?**

*A drop-down menu listing every country was provided to the respondent.*

**Q51: What is your gender?**

- Male
- Female
- Other<sup>5</sup>

**Q52: How many years of professional work experience do you have?**

- 0-4
- 5-9
- 10
- 20-29
- 30+

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<sup>5</sup> As a survey methodology experiment, instead of check boxes for “male” and “female,” a write-in box was provided for this question. Three respondents chose to report their gender as something other than “male” or “female”. This experiment will be discussed further in a future publication.

**Q53: What degrees have you obtained (check *all* that apply)?**

Abitur, Zeugnis der Reife, Zeugnis der Allgemeinen Hochschulreife (pre-University)  
Vordiplom, Zwischenpruefung, Aertzliche Vorpruefung, Diplom-Vorpruefung  
Diplom, Staatsexamen, Magister Artium, Erste Juristische Staatspruefung, Referendarexamen, Arzt, Zahnarzt  
(Masters)  
Doktor, Promotion (Doctorate)  
Habilitation  
Other \_\_\_\_\_

**Q54: Has any of your research/work been funded or paid for by (check all that apply):**

National, State or local governmental grants, contracts, or employment  
European Union or other IGO grants, contracts, or employment  
Research councils  
University sponsorship (from a university other than your own university or college)  
Industry sponsorship (from a company other than your own company or institution)  
Research and Development supported by your employer  
Nonprofit, non-government sources (including foundations)  
Other personal or private funding  
Other:  
Not applicable



## Appendix 3: Basic Results

*Note: Questions in bold are original questions from the survey. Italicized questions are research questions formulated after the survey was completed, that the cross-tabulation following the question was calculated to answer.*

### **Q01: In what field of science do you (or if retired/on leave, did you) primarily work?**

<b>Field of Scientist</b>	<b>Count</b>	<b>Percent</b>
Biological sciences	181	19%
Medical/health sciences	48	5%
Agricultural sciences	2	0%
Other life sciences	12	1%
Physical sciences	115	12%
Chemistry	68	7%
Engineering	45	5%
Earth sciences	22	2%
Physics and astronomy	222	23%
Math and computer sciences	105	11%
Science history, ethics, or philosophy	22	2%
Science education or administration	4	0%
Science publishing or media	3	0%
Other social, behavioral or economic sciences	95	10%
Non-scientific Field	18	2%
Other	0	0%
<b>Total</b>	<b>962</b>	<b>100%</b>

962 responses out of 967 respondents; item response rate = 99.5%

### **Q02: Which of these would you describe as your main job function (check all that apply)?**

<b>Main Job Function</b>	<b>Count</b>	<b>Percent</b>
Academic teaching and research	496	52%
Scientific research (non-academic)	363	38%
Academic administration (e.g., Dean, Department Head)	42	4%
Administration/Management (University/corporate/ <u>government</u> )	36	4%
Student	178	19%
Development (or Finance)	15	2%
Funding	17	2%
Medical services	17	2%
Product/process engineering ( <u>including software</u> )	35	4%
Manufacturing/processing	8	1%
Quality control/assurance/ <u>regulatory/safety/ analysis</u>	13	1%
Purchasing	6	1%
Journalism (writing/editing/publishing)	19	2%
Law/legal services/ <u>forensics</u>	5	1%
Policy/ethics	3	0%
Consulting	23	2%
Intellectual property management (e.g., technology transfer)	5	1%
Retired/on leave	29	3%
Other:	3	0%
<b>Total</b>	<b>1,313</b>	<b>138%</b>

950 responses out of 967 respondents; item response rate = 98.2%

**Q03: Since 1 January 2002, have you/your institution acquired any patented technologies, materials or methods (technology) to use in your work that were covered by some form of intellectual property protection?**

Field (and sector) of Scientist	Yes	No	Don't know	Percent Yes
Biological sciences	50	89	33	29%
Medical/health sciences	13	28	6	28%
Agricultural sciences	1	1	0	50%
Other life sciences	2	6	3	18%
Physical sciences	18	67	27	16%
Chemistry	19	38	8	29%
Engineering	12	27	4	28%
Earth sciences	5	13	3	24%
Physics and astronomy	26	146	47	12%
Math and computer sciences	15	57	28	15%
Science history, ethics, or philosophy	2	16	4	9%
Science education or administration	1	2	1	25%
Science publishing or media	0	3	0	0%
Other social, behavioral or economic sciences	11	65	16	12%
Non-scientific Field	6	8	2	38%
Other	0	0	0	0%
Not Given	1	1	0	50%
<b>Total</b>	<b>182</b>	<b>567</b>	<b>182</b>	<b>20%</b>

931 responses out of 967 respondents; item response rate = 96.3%

**Q04: Please specify the scientific field of the last patented technology you acquired since 1 January 2002**

Field (and source sector) of Technology	Count	Percent
Biological sciences	48	28%
Medical/health sciences	16	9%
Agricultural sciences	2	1%
Other life sciences	0	0%
Physical sciences	12	7%
Chemistry	14	8%
Engineering	11	6%
Earth sciences	3	2%
Physics and astronomy	13	8%
Math and computer sciences	43	25%
Science History, Ethics or Philosophy	0	0%
Science education or administration	1	1%
Science Publishing or Media	2	1%
Other social, behavioral or economic sciences	4	2%
Non-scientific Field	3	2%
Other	0	0%
<b>Total</b>	<b>172</b>	<b>100%</b>

172 responses out of 182 respondents; item response rate = 94.5%

**Q05: Who was the source of this technology?**

Source	Count	Percent
Academia	63	37%
Industry	87	51%
Government/Inter-governmental Organization	7	4%
Nonprofit/Nongovernmental Organization	4	2%
Other	0	0%
Not sure/Don't know	8	5%
Individual/self outside of employment	0	0%
<b>Total</b>	<b>169</b>	<b>100%</b>

169 responses out of 182 respondents; item response rate = 92.9%

**Q06: Was this technology used strictly as a research tool (meaning that it was not the subject of the research)?**

Field of Scientist	Yes	No	Percent Yes	No Response
Biological sciences	43	6	88%	1
Medical/health sciences	9	3	75%	1
Agricultural sciences	0	1	0%	0
Other life sciences	2	0	100%	0
Physical sciences	12	4	75%	2
Chemistry	12	5	71%	2
Engineering	3	7	30%	2
Earth sciences	5	0	100%	0
Physics and astronomy	20	2	91%	4
Math and computer sciences	8	6	57%	1
Science history, ethics, or philosophy	2	0	100%	0
Science education or administration	1	0	100%	0
Science publishing or media	0	0	0%	0
Other social/behavioral/economic sciences	11	0	100%	0
Non-scientific Field	3	2	60%	1
Other	0	0	0%	0
Not Given	0	0	0%	1
<b>Total</b>	<b>131</b>	<b>36</b>	<b>78%</b>	<b>15</b>

167 responses out of 182 respondents; item response rate = 91.8%

**Q07: Please indicate which of the following methods was used in the acquisition of this patented technology.**

Method	Count	Percent
Informal (no official agreement)	13	8%
License: Exclusive	33	21%
License: Nonexclusive	28	18%
Material Transfer Agreement (MTA)	22	14%
Sponsored Research Agreement (SRA)	5	3%
Confidentiality Agreement	7	4%
Memorandum of Understanding (MOU)	3	2%
Purchase	17	11%
General Public License (GPL, Open Source Software)	9	6%
Other	2	1%
Not sure/Don't know	19	12%
Developed by organization/self	1	1%
More than one of the above	0	0%
Donation	0	0%
Acquired through acquisition of company	0	0%
Some type of collaboration/cooperative agreement	1	1%
<b>Total</b>	<b>160</b>	<b>100%</b>

160 responses out of 182 respondents; item response rate = 87.9%

## Q07a: Acquisition by Field of Scientist (percentages only)

Field of Scientist	Total	Not Given	Some type of cooperative agreement	Acquired through acquisition of company	Donation	More than one of the above	Developed by organization/self	Not sure/Don't know	Other	General Public License	Purchase	Memorandum of Understanding	Confidentiality Agreement	Sponsored Research Agreement (SRA)	Material Transfer Agreement (MTA)	License: Nonexclusive	License: Exclusive	Informal (no official agreement)
Biological Sciences	100%	2%	0%	0%	0%	0%	0%	6%	2%	4%	2%	2%	4%	34%	18%	16%	6%	
Medical/health sciences	100%	23%	8%	0%	0%	0%	0%	0%	0%	0%	8%	0%	15%	15%	8%	15%	0%	
Agricultural sciences	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	
Other life Sciences	100%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	
Physical sciences	100%	17%	0%	0%	0%	0%	0%	11%	0%	0%	17%	0%	0%	6%	22%	6%	17%	
Chemistry	100%	16%	0%	0%	0%	0%	0%	26%	0%	0%	5%	0%	5%	5%	5%	21%	11%	
Engineering	100%	17%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	17%	25%	
Earth sciences	100%	0%	0%	0%	0%	0%	0%	20%	0%	0%	20%	20%	0%	0%	40%	0%	0%	
Physics and astronomy	100%	15%	0%	0%	0%	0%	4%	15%	0%	19%	15%	0%	0%	4%	8%	19%	0%	
Math and computer sciences	100%	20%	0%	0%	0%	0%	0%	13%	7%	7%	0%	0%	0%	0%	27%	13%	7%	
Science history, ethics, or philosophy	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	
Science education/administration	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	
Other social, behavioral or economic sciences	100%	0%	0%	0%	0%	0%	0%	18%	0%	9%	9%	0%	0%	0%	9%	55%	0%	

<b>Total</b>	100%	100%	<b>100%</b>
<b>Not Given</b>	17%	100%	<b>12%</b>
<b>Some type of cooperative agreement</b>	0%	0%	<b>1%</b>
<b>Acquired through acquisition of company</b>	0%	0%	<b>0%</b>
<b>Donation</b>	0%	0%	<b>0%</b>
<b>More than one of the above</b>	0%	0%	<b>0%</b>
<b>Developed by organization/self</b>	0%	0%	<b>1%</b>
<b>Not sure/Don't know</b>	0%	0%	<b>10%</b>
<b>Other</b>	0%	0%	<b>1%</b>
<b>General Public License</b>	0%	0%	<b>5%</b>
<b>Purchase</b>	17%	0%	<b>9%</b>
<b>Memorandum of Understanding</b>	0%	0%	<b>2%</b>
<b>Confidentiality Agreement</b>	17%	0%	<b>4%</b>
<b>Sponsored Research Agreement (SRA)</b>	0%	0%	<b>3%</b>
<b>Material Transfer Agreement (MTA)</b>	0%	0%	<b>12%</b>
<b>License: Nonexclusive</b>	17%	0%	<b>15%</b>
<b>License: Exclusive</b>	17%	0%	<b>18%</b>
<b>Informal (no official agreement)</b>	17%	0%	<b>7%</b>
<b>Field of Scientist</b>	Non-scientific Field	Not Given	<b>TOTAL</b>

*Q07b: Acquisition by Sector of Scientist*

<b>Total</b>	47	9	79	3	44
<b>Not Given</b>	0	0	1	0	21
<b>Some type of cooperative agreement</b>	1	0	0	0	0
<b>Acquired through acquisition of company</b>	0	0	0	0	0
<b>Donation</b>	0	0	0	0	0
<b>More than one of the above</b>	0	0	0	0	0
<b>More than one of the above</b>	0	0	1	0	0
<b>Not sure/Don't know</b>	5	0	11	0	3
<b>Other</b>	1	0	1	0	0
<b>General Public License</b>	2	0	5	0	2
<b>Purchase</b>	2	1	11	1	2
<b>Memorandum of Understanding</b>	1	1	1	0	0
<b>Confidentiality Agreement</b>	5	0	1	0	1
<b>Sponsored Research Agreement (SRA)</b>	1	1	2	0	1
<b>Material Transfer Agreement (MTA)</b>	6	0	13	1	2
<b>License: Nonexclusive</b>	7	1	14	1	5
<b>License: Exclusive</b>	11	4	13	0	5
<b>Informal (no official agreement)</b>	5	1	5	0	2
<b>Sector of Scientist</b>	Academia	Industry	GNHC	Other	Not Given

**Q08: Please indicate which, if any, terms were involved in the assignment or licensing of this technology (check all that apply).**

Terms	Count	Percent
Research or experimental use exemption maintained by censor	39	26%
Humanitarian use exemption	2	1%
Limitation on use (field of use restriction)	25	17%
Restrictions on patenting (research use only)	27	18%
Restrictions on redistribution	43	29%
Restrictions on publication and dissemination of research results	16	11%
Claims on future products, through reach through royalties, future license rights, or similar claims	16	11%
Request for authorship	10	7%
None	19	13%
Other	1	1%
Not sure/don't know	32	21%
<b>Total</b>	<b>230</b>	<b>154%</b>

149 responses out of 182 respondents; item response rate = 81.9%

*Q08a: By Field of Respondent*

Field of Respondent	Research or experimental use exemption maintained by censor	Humanitarian use exemption	Limitation on use (field of use restriction)	Restrictions on patenting (research use only)	Restrictions on redistribution	Restrictions on publication and dissemination of research results	Claims on future products, through reach through royalties, future license rights, or similar claims	Request for authorship	None	Other	Not sure/don't know	Total Respondents
Biological Sciences	17	1	8	17	18	8	10	4	4	1	4	47
	36%	2%	17%	36%	38%	17%	21%	9%	9%	2%	9%	100%
Medical/health sciences	3	0	3	2	1	0	3	2	2	0	0	10
	30%	0%	30%	20%	10%	0%	30%	20%	20%	0%	0%	100%
Agricultural Sciences	0	0	0	0	0	0	0	0	1	0	0	1
	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%
Other life Sciences	0	0	0	0	0	0	0	0	0	0	1	1
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Physical Sciences	3	0	3	1	4	0	0	1	1	0	4	14
	21%	0%	21%	7%	29%	0%	0%	7%	7%	0%	29%	100%
Chemistry	2	0	1	2	3	3	0	0	3	0	4	15
	13%	0%	7%	13%	20%	20%	0%	0%	20%	0%	27%	100%
Engineering	2	0	2	0	1	1	1	0	2	0	3	9
	22%	0%	22%	0%	11%	11%	11%	0%	22%	0%	33%	100%
Earth sciences	0	0	2	1	2	1	0	0	1	0	2	5
	0%	0%	40%	20%	40%	20%	0%	0%	20%	0%	40%	100%
Physics and astronomy	7	0	3	3	6	2	1	2	2	0	4	19
	37%	0%	16%	16%	32%	11%	5%	11%	11%	0%	21%	100%
Math and computer sciences	1	0	1	1	2	1	0	0	1	0	5	10
	10%	0%	10%	10%	20%	10%	0%	0%	10%	0%	50%	100%
Science history/ethics/philosophy	0	0	0	0	1	0	0	0	0	0	1	2
	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	50%	100%

Field of Respondent	Research or experimental use exemption maintained by censor	Humanitarian use exemption	Limitation on use (field of use restriction)	Restrictions on patenting (research use only)	Restrictions on redistribution	Restrictions on publication and dissemination of research results	Claims on future products, through reach through royalties, future license rights, or similar claims	Request for authorship	None	Other	Not sure/don't know	Total Respondents
Science education/administration	0	0	0	0	1	0	0	0	0	0	0	1
	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%
Science publishing/media	0	0	0	0	0	0	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other social, behavioral economic sciences	4	1	1	0	3	0	0	1	1	0	3	10
	40%	10%	10%	0%	30%	0%	0%	10%	10%	0%	30%	100%
Non-scientific Field	0	0	1	0	1	0	1	0	1	0	1	5
	0%	0%	20%	0%	20%	0%	20%	0%	20%	0%	20%	100%
<b>TOTAL</b>	<b>39</b>	<b>2</b>	<b>25</b>	<b>27</b>	<b>43</b>	<b>16</b>	<b>16</b>	<b>10</b>	<b>19</b>	<b>1</b>	<b>32</b>	<b>149</b>
	<b>26%</b>	<b>1%</b>	<b>17%</b>	<b>18%</b>	<b>29%</b>	<b>11%</b>	<b>11%</b>	<b>7%</b>	<b>13%</b>	<b>1%</b>	<b>21%</b>	<b>100%</b>

*Q08b: By Sector of Respondent*

Sector of Respondent	Research or experimental use exemption maintained by censor	Humanitarian use exemption	Limitation on use (field of use)	Restrictions on patenting (research use)	Restrictions on redistribution	Restrictions on publication and dissemination of research results	Claims on future products, through reach through royalties, future license rights, or similar claims	Request for authorship	None	Other	Not sure/don't know	Total Respondents
Academia	10	0	8	9	15	7	4	3	4	0	12	47
	21%	0%	17%	19%	32%	15%	9%	6%	9%	0%	26%	100%
Industry	2	0	2	2	0	1	1	0	5	0	0	9
	22%	0%	22%	22%	0%	11%	11%	0%	56%	0%	0%	100%
GNHC	20	2	13	15	26	8	8	7	9	0	17	76
	26%	3%	17%	20%	34%	11%	11%	9%	12%	0%	22%	100%
Other	0	0	0	0	1	0	0	0	0	0	2	3
	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	67%	100%
Not Given	7	0	2	1	1	0	3	0	1	1	1	14
	50%	0%	14%	7%	7%	0%	21%	0%	7%	7%	7%	100%
<b>TOTAL</b>	<b>39</b>	<b>2</b>	<b>25</b>	<b>27</b>	<b>43</b>	<b>16</b>	<b>16</b>	<b>10</b>	<b>19</b>	<b>1</b>	<b>32</b>	<b>149</b>
	<b>26%</b>	<b>1%</b>	<b>17%</b>	<b>18%</b>	<b>29%</b>	<b>11%</b>	<b>11%</b>	<b>7%</b>	<b>13%</b>	<b>1%</b>	<b>21%</b>	<b>100%</b>

**Q09: How long did it take to acquire this patented technology?**

Method of Acquisition	<1 month	1 to 2 months	>2 months but <6 months	6 months or more	Not sure/ don't know	Not Given	Total
Informal (no official agreement)	5	0	2	3	2	1	13
	38%	0%	15%	23%	15%	8%	100%
License: Exclusive	11	3	5	5	5	4	33
	33%	9%	15%	15%	15%	12%	100%
License: Nonexclusive	11	6	2	3	3	3	28
	39%	21%	7%	11%	11%	11%	100%
Material Transfer Agreement	7	5	6	4	0	0	22
	32%	23%	27%	18%	0%	0%	100%
Sponsored Research Agreement	0	0	3	2	0	0	5
	0%	0%	60%	40%	0%	0%	100%
Confidentiality Agreement	1	1	1	2	1	1	7
	14%	14%	14%	29%	14%	14%	100%
Memorandum of Understanding	1	2	0	0	0	0	3
	33%	67%	0%	0%	0%	0%	100%
Purchase	9	2	1	1	3	1	17
	53%	12%	6%	6%	18%	6%	100%
GPL, Open Source Software	3	0	2	2	0	2	9
	33%	0%	22%	22%	0%	22%	100%
Other	1	0	0	0	1	0	2
	50%	0%	0%	0%	50%	0%	100%
Not sure/Don't know	3	1	1	4	8	2	19
	16%	5%	5%	21%	42%	11%	100%
Developed by organization/self	0	0	0	0	1	0	1
	0%	0%	0%	0%	100%	0%	100%
More than one of the above	0	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%	0%
Donation	0	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%	0%
Acquired through acquisition of company	0	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%	0%
Cooperative agreement	0	0	0	0	1	0	1
	0%	0%	0%	0%	100%	0%	100%
No response	0	0	0	0	0	22	22
	0%	0%	0%	0%	0%	100%	100%
<b>Total</b>	<b>52</b>	<b>20</b>	<b>23</b>	<b>26</b>	<b>25</b>	<b>36</b>	<b>182</b>
	<b>29%</b>	<b>11%</b>	<b>13%</b>	<b>14%</b>	<b>14%</b>	<b>20%</b>	<b>100%</b>

146 responses out of 182 respondents; item response rate = 80.2%

*Q09a: Breakdown by sector.*

<b>Sector of Respondent</b>	<b>&gt;1 month</b>	<b>1 to 2 months</b>	<b>&gt;2 months but &lt;6 months</b>	<b>6 months or more</b>	<b>Not sure/ don't know</b>	<b>Not Given</b>	<b>Total</b>
Academia	18	6	8	7	8	0	47
	38%	13%	17%	15%	17%	0%	100%
Industry	0	2	5	2	0	0	9
	0%	22%	56%	22%	0%	0%	100%
GNHC	28	11	9	13	16	2	79
	35%	14%	11%	16%	20%	3%	100%
Other	1	0	0	1	1	0	3
	33%	0%	0%	33%	33%	0%	100%
Not Given	5	1	1	3	0	34	44
	11%	2%	2%	7%	0%	77%	100%
<b>Total</b>	<b>52</b>	<b>20</b>	<b>23</b>	<b>26</b>	<b>25</b>	<b>36</b>	<b>182</b>
	<b>29%</b>	<b>11%</b>	<b>13%</b>	<b>14%</b>	<b>14%</b>	<b>20%</b>	<b>100%</b>

*Q09b: Breakdown by Scientific Field of Respondent*

<b>Field of Respondent</b>	<b>&gt;1 month</b>	<b>1 to 2 months</b>	<b>&gt;2 months but &lt;6 months</b>	<b>6 months or more</b>	<b>Not sure/ don't know</b>	<b>Not Given</b>	<b>Total</b>
Biological sciences	19	7	10	7	2	5	50
	38%	14%	20%	14%	4%	10%	100%
Medical/ health	1	0	3	3	3	3	13
	8%	0%	23%	23%	23%	23%	100%
Agricultural	0	0	1	0	0	0	1
	0%	0%	100%	0%	0%	0%	100%
Other life sciences	0	0	0	0	1	1	2
	0%	0%	0%	0%	50%	50%	100%
Physical sciences	3	4	2	0	6	3	18
	17%	22%	11%	0%	33%	17%	100%
Chemistry	5	2	1	6	1	4	19
	26%	11%	5%	32%	5%	21%	100%
Engineering	2	1	1	4	1	3	12
	17%	8%	8%	33%	8%	25%	100%
Earth Sciences	3	1	1	0	0	0	5
	60%	20%	20%	0%	0%	0%	100%
Physics and astronomy	6	2	2	3	4	9	26
	23%	8%	8%	12%	15%	35%	100%
Math/computer sci.	5	1	1	2	2	4	15
	33%	7%	7%	13%	13%	27%	100%
Science history/ethics/ philosophy	1	0	0	0	1	0	2
	50%	0%	0%	0%	50%	0%	100%
Science education/ admin.	0	1	0	0	0	0	1
	0%	100%	0%	0%	0%	0%	100%
Other social/ behavioral/ economic sciences	4	1	1	0	4	1	11
	36%	9%	9%	0%	36%	9%	100%
Non-scientific field	3	0	0	1	0	2	6
	50%	0%	0%	17%	0%	33%	100%
Not Given	0	0	0	0	0	1	1
	0%	0%	0%	0%	0%	100%	100%
<b>Total</b>	<b>52</b>	<b>20</b>	<b>23</b>	<b>26</b>	<b>25</b>	<b>36</b>	<b>182</b>
	<b>29%</b>	<b>11%</b>	<b>13%</b>	<b>14%</b>	<b>14%</b>	<b>20%</b>	<b>100%</b>

**Q10: Since 1 January 2002, did you experience any difficulties while attempting to acquire any patented technologies?**

Method	Yes	No	Percent Yes	No Response
Informal (no official agreement)	1	11	8%	1
License: Exclusive	4	24	14%	5
License: Nonexclusive	5	19	21%	4
Material Transfer Agreement (MTA)	7	14	33%	1
Sponsored Research Agreement (SRA)	3	2	60%	0
Confidentiality Agreement	3	3	50%	1
Memorandum of Understanding (MOU)	0	3	0%	0
Purchase	3	13	19%	1
General Public License (GPL, Open Source Software)	2	6	25%	1
Other	0	2	0%	0
Not sure/Don't know	5	12	29%	2
Developed by organization/self	0	1	0%	0
More than one of the above	0	0	0%	0
Donation	0	0	0%	0
Acquired through acquisition of company	0	0	0%	0
Some type of collaboration/cooperative agreement	0	1	0%	0
No response	0	0	0%	22
<b>Total</b>	<b>33</b>	<b>111</b>	<b>23%</b>	<b>38</b>

144 responses out of 182 respondents; item response rate = 79.1%

**Q11: Thinking back to the last time since 1 January 2005[sic] that you had difficulties acquiring a patented technology, what were the reasons (check all that apply)?**

Reasons	Count	Percent
Necessary patents were/are not licensable	3	9%
Request for license denied	6	19%
Overly complex patent licensing negotiations	16	50%
Licensing negotiations broke down	7	22%
Individuals royalties were too high	11	34%
Royalties required for multiple patents	2	6%
Unable to determine the IP status of the technology	11	34%
Other	2	6%
<b>Total</b>	<b>58</b>	<b>181%</b>

32 responses out of 33 respondents; item response rate = 97%

**Q12: Ultimately, how was your research affected by these difficulties?**

Effect	Count	Percent
It was delayed	14	45%
It had to be changed	11	35%
It had to be abandoned	1	3%
Effect not yet known	3	10%
Not at all	2	6%
Other	0	0%
<b>Total</b>	<b>31</b>	<b>100%</b>

31 responses out of 33 respondents; item response rate = 93.9%

**Q13: As a result of having to change your research, did you do any of the following (check all that apply)?**

Strategy (Field/Sector of Acquired Technology)	Count	Percent
Used different technologies/tools	8	80%
Attempted to invent around patented technology	3	30%
Changed geographic location for the work (to another country)	0	0%
Changed project goals	1	10%
Worked around issue in another way	1	10%
Other	0	0%
<b>Total</b>	<b>13</b>	<b>130%</b>

10 responses out of 11 respondents; item response rate = 90.9%

**Q14: Does your current work involve less or more licensing of technology than it did prior to 1 January 2002?**

Choice	Count	Percent
Less	46	5%
About the same	205	23%
More	101	11%
Not sure	114	13%
Don't know, only active in my field since:	91	10%
Not applicable	323	37%
<b>Total</b>	<b>880</b>	<b>100%</b>

880 responses out of 967 respondents; item response rate = 91%

*Q14a: By Field.*

Field of Scientist	Less	Same	More	Not Sure	Don't Know	Not Applicable	Not Given	Total
Biological sciences	13	41	26	25	17	45	14	181
	7%	23%	14%	14%	9%	25%	8%	100%
Medical/health sciences	2	12	5	8	5	11	5	48
	4%	25%	10%	17%	10%	23%	10%	100%
Agricultural sciences	0	1	0	0	0	1	0	2
	0%	50%	0%	0%	0%	50%	0%	100%
Other life sciences	0	1	0	3	4	2	2	12
	0%	8%	0%	25%	33%	17%	17%	100%
Physical sciences	8	24	12	18	11	32	10	115
	7%	21%	10%	16%	10%	28%	9%	100%
Chemistry	4	17	11	7	5	16	8	68
	6%	25%	16%	10%	7%	24%	12%	100%
Engineering	5	10	5	5	3	12	5	45
	11%	22%	11%	11%	7%	27%	11%	100%
Earth sciences	2	5	4	2	2	6	1	22
	9%	23%	18%	9%	9%	27%	5%	100%
Physics and astronomy	7	47	17	19	29	88	15	222
	3%	21%	8%	9%	13%	40%	7%	100%
Math & computer sciences	0	24	10	16	12	33	10	105
	0%	23%	10%	15%	11%	31%	10%	100%
Science history, ethics, or philosophy	1	5	2	1	0	12	1	22
	5%	23%	9%	5%	0%	55%	5%	100%
Science education /administration	0	2	2	0	0	0	0	4
	0%	50%	50%	0%	0%	0%	0%	100%

Field of Scientist	Less	Same	More	Not Sure	Don't Know	Not Applicable	Not Given	Total
Science publishing or media	1	1	0	0	0	1	0	3
	33%	33%	0%	0%	0%	33%	0%	100%
Other social, behavioral or economic sciences	2	14	6	8	3	55	7	95
	2%	15%	6%	8%	3%	58%	7%	100%
Non-scientific Field	1	1	1	1	0	9	5	18
	6%	6%	6%	6%	0%	50%	28%	100%
Not Given	0	0	0	1	0	0	4	5
	0%	0%	0%	20%	0%	0%	80%	100%
<b>Total</b>	<b>46</b>	<b>205</b>	<b>101</b>	<b>114</b>	<b>91</b>	<b>323</b>	<b>87</b>	<b>967</b>
	<b>5%</b>	<b>21%</b>	<b>10%</b>	<b>12%</b>	<b>9%</b>	<b>33%</b>	<b>9%</b>	<b>100%</b>

**Q15: Since 1 January 2002, have you/your institution created any technologies that you/your institution would consider intellectual property?**

Field of Scientist	Yes	No	Percent Yes	No Response
Biological sciences	55	111	33%	15
Medical/health sciences	14	29	33%	5
Agricultural sciences	2	0	100%	0
Other life sciences	0	10	0%	2
Physical sciences	38	61	38%	16
Chemistry	26	32	45%	10
Engineering	28	11	72%	6
Earth sciences	8	13	38%	1
Physics and astronomy	56	153	27%	13
Math and computer sciences	26	69	27%	10
Science history/ ethics/ philosophy	4	18	18%	0
Science education/administration	3	1	75%	0
Science publishing/media	2	1	67%	0
Other social/ behavioral/economic sciences	17	68	20%	10
Non-scientific Field	6	7	46%	5
Other	0	0	0%	0
No Response	1	0	100%	4
<b>Total</b>	<b>286</b>	<b>584</b>	<b>33%</b>	<b>97</b>

870 responses out of 967 respondents; item response rate = 90%

**Q16: Which of the following approaches were used in protecting your/your institution's last technological innovation (check all that apply)?**

Field of Scientist	Patent	Copyright	Trademark	Trade Secret	Complex Product Design	Embodied in Product	Withheld data or Information	Delayed Publication	Did not Publish	None	Other	Total Respondents
Biological sciences	33	6	3	1	3	1	4	8	7	11	0	55
	60%	11%	5%	2%	5%	2%	7%	15%	13%	20%	0%	100%
Medical/health sciences	8	4	1	1	0	1	3	2	2	1	1	14
	57%	29%	7%	7%	0%	7%	21%	14%	14%	7%	7%	100%
Agricultural sciences	1	0	0	0	0	0	0	0	1	0	0	2
	50%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	100%

Field of Scientist	Patent	Copyright	Trademark	Trade Secret	Complex Product Design	Embodied in Product	Withheld data or Information	Delayed Publication	Did not Publish	None	Other	Total Respondents
Physical sciences	12	9	1	0	0	1	1	8	3	10	0	38
	32%	24%	3%	0%	0%	3%	3%	21%	8%	26%	0%	100%
Chemistry	15	6	2	2	0	0	3	6	4	1	1	26
	58%	23%	8%	8%	0%	0%	12%	23%	15%	4%	4%	100%
Engineering	13	4	2	0	2	3	2	5	4	4	0	26
	50%	15%	8%	0%	8%	12%	8%	19%	15%	15%	0%	100%
Earth sciences	0	3	0	0	0	0	2	2	3	3	2	8
	0%	38%	0%	0%	0%	0%	25%	25%	38%	38%	25%	100%
Physics/ astronomy	11	18	1	0	1	2	2	4	3	18	0	52
	21%	35%	2%	0%	2%	4%	4%	8%	6%	35%	0%	100%
Math/ computer Sciences	4	13	1	1	0	2	1	3	2	5	0	25
	16%	52%	4%	4%	0%	8%	4%	12%	8%	20%	0%	100%
Science history/ ethics/ philosophy	0	3	0	0	1	0	0	0	0	1	0	4
	0%	75%	0%	0%	25%	0%	0%	0%	0%	25%	0%	100%
Science education/ administration	1	1	0	0	0	0	0	0	0	1	0	3
	33%	33%	0%	0%	0%	0%	0%	0%	0%	33%	0%	100%
Science publishing/ media	0	0	0	0	0	0	0	0	0	1	1	2
	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%	100%
Other social, behavioral, economic sciences	0	11	0	0	0	0	1	0	3	2	0	16
	0%	69%	0%	0%	0%	0%	6%	0%	19%	13%	0%	100%
Non-scientific Field	0	2	0	0	0	0	0	0	1	2	0	5
	0%	40%	0%	0%	0%	0%	0%	0%	20%	40%	0%	100%
<b>Total</b>	<b>98</b>	<b>80</b>	<b>11</b>	<b>5</b>	<b>7</b>	<b>10</b>	<b>19</b>	<b>38</b>	<b>33</b>	<b>60</b>	<b>5</b>	<b>276</b>
	<b>36%</b>	<b>29%</b>	<b>4%</b>	<b>2%</b>	<b>3%</b>	<b>4%</b>	<b>7%</b>	<b>14%</b>	<b>12%</b>	<b>22%</b>	<b>2%</b>	<b>100%</b>

276 responses out of 286 respondents; item response rate = 96.5%

**Q17A: Since 1 January 2002, how many patents have you/your institution submitted or have pending?**

Field of Scientist	Submitted/ pending = 0	Submitted/ pending > 0	Submitted DK/NA/NR	Submitted Percent > 0	No Response
Biological sciences	13	25	0	66%	17
Medical/health sciences	2	6	0	75%	6
Agricultural sciences	1	1	0	50%	0
Other life sciences	0	0	0	0%	0
Physical sciences	13	11	0	46%	14
Chemistry	5	12	0	71%	9
Engineering	4	11	0	73%	13
Earth sciences	3	1	0	25%	4
Physics/ astronomy	21	10	0	32%	25
Math/ computer sciences	11	4	0	27%	11
Science history/ ethics/ philosophy	2	0	0	0%	2

Field of Scientist	Submitted/ pending = 0	Submitted/ pending > 0	Submitted DK/NA/NR	Submitted Percent > 0	No Response
Science education/ administration	1	1	0	50%	1
Science publishing/ media	1	0	0	0%	1
Other social, behavioral or economic sciences	12	0	0	0%	5
Non-scientific Field	2	0	0	0%	4
Other	0	0	0	0%	0
Not Given	0	0	0	0%	1
<b>Total</b>	<b>91</b>	<b>82</b>	<b>0</b>	<b>47%</b>	<b>113</b>

173 responses out of 286 respondents; item response rate = 60.5%

**Q17B: Since 1 January 2002, how many patents have been issued to you/your institution?**

Field of Scientist	Submitted/ pending = 0	Submitted/ pending > 0	Submitted DK/NA/NR	Submitted Percent > 0	No Response
Biological sciences	20	13	0	39%	22
Medical/health sciences	3	4	0	57%	7
Agricultural sciences	1	1	0	50%	0
Other life sciences	0	0	0	0%	0
Physical sciences	16	7	0	30%	15
Chemistry	8	6	0	43%	12
Engineering	2	9	0	82%	17
Earth sciences	3	0	0	0%	5
Physics/ astronomy	26	6	0	19%	24
Math/ computer Sciences	11	5	0	31%	10
Science history/ ethics/ philosophy	1	0	0	0%	3
Science education/ administration	1	1	0	50%	1
Science publishing/ media	1	0	0	0%	1
Other social, behavioral or economic sciences	11	0	0	0%	6
Non-scientific Field	2	0	0	0%	4
Other	0	0	0	0%	0
Not Given	0	0	0	0%	1
<b>Total</b>	<b>106</b>	<b>52</b>	<b>0</b>	<b>33%</b>	<b>128</b>

158 responses out of 286 respondents; item response rate = 55.2%

**Q18: Answered in regards to the last patent received by respondent. What was the primary field for this patent (check only one)?**

Field of Technology	Count	Percent
Biological sciences	9	18%
Medical/health sciences	11	22%
Agricultural sciences	2	4%
Other life sciences	0	0%
Physical sciences	6	12%
Chemistry	5	10%
Engineering	11	22%
Earth sciences	0	0%
Physics and astronomy	3	6%
Math and computer sciences	4	8%
Social, behavioral or economic sciences	0	0%
Non-scientific Field	0	0%
Other	0	0%
<b>Total</b>	<b>51</b>	<b>100%</b>

51 responses out of 52 respondents; item response rate = 98.1%

**Q19: Would you consider this a technology whose value is wholly or partially in its use as a tool for conducting research (e.g., as a research tool or to enable technology)?**

Field of Scientist	Yes	No	Don't Know	Percent Yes	No Response
Biological sciences	5	6	1	42%	1
Medical/health sciences	1	1	2	25%	0
Agricultural sciences	1	0	0	100%	0
Other life sciences	0	0	0	0%	0
Physical sciences	3	3	1	43%	0
Chemistry	2	3	0	40%	1
Engineering	4	3	2	44%	0
Earth sciences	0	0	0	0%	0
Physics and astronomy	4	1	1	67%	0
Math and computer sciences	2	2	1	40%	0
Science history, ethics, philosophy	0	0	0	0%	0
Science education or administration	1	0	0	100%	0
Science publishing or media	0	0	0	0%	0
Other social, behavioral or economic sciences	0	0	0	0%	0
Non-scientific Field	0	0	0	0%	0
Other	0	0	0	0%	0
Not Given	0	0	0	0%	0
<b>Total</b>	<b>23</b>	<b>19</b>	<b>8</b>	<b>46%</b>	<b>2</b>

50 responses out of 52 respondents; item response rate = 96.2%

**Q20: Please rate how important applying for and/or acquiring this patent was to you/your institution with respect to each of the following:**

	Not at all important	Slightly important	Somewhat important	Very important	Total Response
Acquiring venture capital	24 56%	9 21%	6 14%	4 9%	43 100%
Cooperating with other institutions	11 26%	13 30%	9 21%	10 23%	43 100%
Mergers with other institutions	26 62%	7 17%	6 14%	3 7%	42 100%
Acquiring public R&D funding	13 29%	8 18%	14 31%	10 22%	45 100%
Acquiring private R&D funding	24 59%	6 15%	6 15%	5 12%	41 100%
Generating licensing income	19 45%	12 29%	7 17%	4 10%	42 100%
Timing of scientific publications	10 24%	9 22%	17 41%	5 12%	41 100%
Number of scientific publications	11 26%	13 31%	13 31%	5 12%	42 100%
Improving your or your institution's technological portfolio	5 12%	10 23%	13 30%	15 35%	43 100%
Improving your or your institution's academic reputation	6 13%	5 11%	24 52%	11 24%	46 100%
Improving your or your organization's negotiations (e.g., cross licensing or joint ventures)	12 28%	16 37%	6 14%	9 21%	43 100%
Protecting own technology from imitation	4 10%	7 17%	10 24%	21 50%	42 100%
Preventing competitors' patenting and application activities	8 18%	12 27%	7 16%	17 39%	44 100%
Improving R&D cooperation	9 20%	13 29%	15 33%	8 18%	45 100%

	Not at all important	Slightly important	Somewhat important	Very important	Total Response
Other concerns	20 74%	3 11%	1 4%	3 11%	27 100%

43 responses out of 52 respondents; item response rate = 82.7%

43 responses out of 52 respondents; item response rate = 82.7%

42 responses out of 52 respondents; item response rate = 80.8%

45 responses out of 52 respondents; item response rate = 86.5%

41 responses out of 52 respondents; item response rate = 78.8%

42 responses out of 52 respondents; item response rate = 80.8%

41 responses out of 52 respondents; item response rate = 78.8%

42 responses out of 52 respondents; item response rate = 80.8%

43 responses out of 52 respondents; item response rate = 82.7%

46 responses out of 52 respondents; item response rate = 88.5%

43 responses out of 52 respondents; item response rate = 82.7%

42 responses out of 52 respondents; item response rate = 80.8%

44 responses out of 52 respondents; item response rate = 84.6%

45 responses out of 52 respondents; item response rate = 86.5%

27 responses out of 52 respondents; item response rate = 51.9%

#### Q21: Was the technology protected by this patent disseminated to others in any way?

Field of Scientist	Yes	No	Don't Know	Percent Yes	No Response
Biological sciences	8	2	1	73%	2
Medical/health sciences	1	2	1	25%	0
Agricultural sciences	0	1	0	0%	0
Other life sciences	0	0	0	0%	0
Physical sciences	3	0	4	43%	0
Chemistry	4	1	0	80%	1
Engineering	5	2	2	56%	0
Earth sciences	0	0	0	0%	0
Physics and astronomy	3	1	2	50%	0
Math and computer sciences	3	0	2	60%	0
Science history, ethics, philosophy	0	0	0	0%	0
Science education or administration	1	0	0	100%	0
Science publishing or media	0	0	0	0%	0
Other social, behavioral or economic sciences	0	0	0	0%	0
Non-scientific Field	0	0	0	0%	0
Other	0	0	0	0%	0
Not Given	0	0	0	0%	0
<b>Total</b>	<b>28</b>	<b>9</b>	<b>12</b>	<b>57%</b>	<b>3</b>

49 responses out of 52 respondents; item response rate = 94.2%

#### Q22: Please indicate how the technology protected by this patent was disseminated:

Choice	Count	Percent
Shared informally (no official agreements)	7	26%
Licensed exclusively	4	15%
Licensed Nonexclusively	3	11%
Donated/given for free	1	4%
Placed in patent pool or consortia	2	7%
Used in cross-licensing agreements	2	7%
Published in scientific journal/conference	18	67%
Sold the technology	3	11%
Other	0	0%
<b>Total</b>	<b>40</b>	<b>148%</b>

27 responses out of 28 respondents; item response rate = 96.4%

**Q22A: Who was the recipient of the technology protected by this patent (select only one)?**

Choice	Count	Percent
Academia	0	0%
Industry	4	100%
Government	0	0%
Nonprofit	0	0%
Other	0	0%
<b>Total</b>	<b>4</b>	<b>100%</b>

4 responses out of 4 respondents; item response rate = 100%

**Q22B: How easy or difficult was it to license the technology protected by this patent?**

Choice	Count	Percent
Very easy	0	0%
Easy	2	50%
Neither easy nor difficult	1	25%
Difficult	1	25%
Very difficult	0	0%
Don't know	0	0%
<b>Total</b>	<b>4</b>	<b>100%</b>

4 responses out of 4 respondents; item response rate = 100%

**Q22C: In setting the licensing terms for the technology protected by this patent, did you maintain a (check all that apply):**

Choice	Count	Percent
Research or experimental use exemption that allowed you or others to continue to conduct work on or with the technology for research purposes	2	50%
Humanitarian use exemption that <i>allowed for the development of and/or the transfer of the technology to developing countries</i>	0	0%
Neither	1	25%
Not sure/don't know	1	25%
<b>Total</b>	<b>4</b>	<b>100%</b>

4 responses out of 4 respondents; item response rate = 100%

**Q22D: Who were the recipients of the technology protected by this patent (select all that apply)?**

Choice	Count	Percent
Academia	1	33%
Industry	3	100%
Government	2	67%
Nonprofit	1	33%
Other	0	0%
<b>Total</b>	<b>7</b>	<b>233%</b>

3 responses out of 3 respondents; item response rate = 100%

**Q22E: In setting the licensing terms for the technology protected by this patent, did you maintain a (check all that apply):**

Choice	Count	Percent
Research or experimental use exemption that allowed you to continue to conduct work on or with the technology for research purposes	2	67%
Humanitarian use exemption that <i>allowed for the development of and/or the transfer of the technology to developing countries</i>	0	0%
Neither	1	33%
Not sure/don't know	0	0%
Does not apply	0	0%
<b>Total</b>	<b>3</b>	<b>100%</b>

3 responses out of 3 respondents; item response rate = 100%

**Q23: Which ONE of these is the main reason that you have not disseminated the technology protected by this patent?**

Choice	Count	Percent
You (or your organization) planned/are planning to conduct future research with the technology	4	50%
You (or your organization) were/are developing or commercializing the technology yourself	2	25%
You (or your organization) wanted/want to block competitors	2	25%
Precluded by an agreement	0	0%
Other:	0	0%
<b>Total</b>	<b>8</b>	<b>100%</b>

8 responses out of 9 respondents; item response rate = 88.9%

**Q24: Has your scientific work ever been published?**

Field of Scientist	Yes	No	Don't know	Percent Yes	No Response
Biological sciences	138	19	1	87%	23
Medical/health sciences	35	4	2	85%	7
Agricultural sciences	2	0	0	100%	0
Other life sciences	5	5	0	50%	2
Physical sciences	94	5	0	95%	16
Chemistry	50	6	1	88%	11
Engineering	30	5	2	81%	8
Earth sciences	20	2	0	91%	0
Physics and astronomy	184	20	1	90%	17
Math and computer sciences	79	12	2	85%	12
Science history, ethics, or philosophy	20	1	1	91%	0
Science education or administration	3	0	0	100%	1
Science publishing or media	3	0	0	100%	0
Other social, behavioral or economic sciences	76	7	3	88%	9
Non-scientific Field	8	2	2	67%	6
Other	0	0	0	0%	0
Not Given	0	0	0	0%	5
<b>Total</b>	<b>747</b>	<b>88</b>	<b>15</b>	<b>88%</b>	<b>117</b>

850 responses out of 967 respondents; item response rate = 87.9%

**Q25: Why did you choose to publish this material (check all that apply)?**

Choice	Count	Percent
To inform others about your work and results	702	95%
To increase prospects for promotion	399	54%
To gain credits for academic advancement, etc. (e.g., Research Assessment Exercise, RAE)	333	45%
To gain/justify research funding	358	49%
To get feedback from reviewers and readers	398	54%
To document the work in an archival way	293	40%
To prevent others from acquiring IP protections	35	5%
Other	1	0%
Gain investment capital/promote commercial product	0	0%
Duty/other's choice/invitation	4	1%
<b>Total</b>	<b>2,523</b>	<b>342%</b>

737 responses out of 747 respondents; item response rate = 98.7%

**Q26: Regarding your latest publication, who published this material?**

<b>Publisher</b>	<b>Count</b>	<b>Percent</b>
Myself or my department	163	22%
My organization	16	2%
Conference organizer	44	6%
Journal or proceedings publisher	481	65%
Professional association (other than your own organization)	10	1%
National (government) library or other government office	0	0%
Placed in a freely accessible archive	16	2%
Placed in a commercial archive	2	0%
Other	0	0%
(Commercial Publishing Group (including Commercial University Presses))	5	1%
<b>Total</b>	<b>737</b>	<b>100%</b>

737 responses out of 747 respondents; item response rate = 98.7%

*Q26a: Breakdown by field of respondent.*

	Myself or my department	My organization	Conference organizer	Journal or proceedings publisher	Professional association (other than your own organization)	National (government) library or other government office	Placed in a freely accessible archive	Placed in a commercial archive	Other	Commercial Publishing Group	Not Given	Total
Biological sciences	40	4	5	83	3	0	1	0	0	0	2	138
	29%	3%	4%	60%	2%	0%	1%	0%	0%	0%	1%	100%
Medical/health sciences	16	2	1	13	0	0	0	2	0	0	1	35
	46%	6%	3%	37%	0%	0%	0%	6%	0%	0%	3%	100%
Agricultural sciences	0	0	0	2	0	0	0	0	0	0	0	2
	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	100%
Other life sciences	1	0	1	3	0	0	0	0	0	0	0	5
	20%	0%	20%	60%	0%	0%	0%	0%	0%	0%	0%	100%
Physical sciences	23	0	3	65	0	0	1	0	0	0	2	94
	24%	0%	3%	69%	0%	0%	1%	0%	0%	0%	2%	100%
Chemistry	17	5	0	27	1	0	0	0	0	0	0	50
	34%	10%	0%	54%	2%	0%	0%	0%	0%	0%	0%	100%
Engineering	6	1	7	14	0	0	1	0	0	0	1	30
	20%	3%	23%	47%	0%	0%	3%	0%	0%	0%	3%	100%
Earth sciences	4	1	1	12	0	0	1	0	0	1	0	20
	20%	5%	5%	60%	0%	0%	5%	0%	0%	5%	0%	100%
Physics and Astronomy	33	2	11	125	3	0	7	0	0	1	2	184
	18%	1%	6%	68%	2%	0%	4%	0%	0%	1%	1%	100%
Math and computer sciences	9	1	3	61	1	0	4	0	0	0	0	79
	11%	1%	4%	77%	1%	0%	5%	0%	0%	0%	0%	100%
Science history, ethics, or philosophy	2	0	6	11	0	0	0	0	0	0	1	20
	10%	0%	30%	55%	0%	0%	0%	0%	0%	0%	5%	100%

	Myself or my department	My organization	Conference organizer	Journal or proceedings publisher	Professional association (other than your own organization)	National (government) library or other government office	Placed in a freely accessible archive	Placed in a commercial archive	Other	Commercial Publishing Group	Not Given	Total
Science education or administration	1	0	0	1	0	0	1	0	0	0	0	3
	33%	0%	0%	33%	0%	0%	33%	0%	0%	0%	0%	100%
Science publishing or media	1	0	1	1	0	0	0	0	0	0	0	3
	33%	0%	33%	33%	0%	0%	0%	0%	0%	0%	0%	100%
Other social, behavioral or economic sci-	9	0	5	57	2	0	0	0	0	3	0	76
	12%	0%	7%	75%	3%	0%	0%	0%	0%	4%	0%	100%
Non-scientific Field	1	0	0	6	0	0	0	0	0	0	1	8
	13%	0%	0%	75%	0%	0%	0%	0%	0%	0%	13%	100%
<b>Total</b>	<b>163</b>	<b>16</b>	<b>44</b>	<b>481</b>	<b>10</b>	<b>0</b>	<b>16</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>747</b>
	<b>22%</b>	<b>2%</b>	<b>6%</b>	<b>64%</b>	<b>1%</b>	<b>0%</b>	<b>2%</b>	<b>0%</b>	<b>0%</b>	<b>1%</b>	<b>1%</b>	<b>100%</b>

## Q26b: Breakdown by field of sector

	Myself or my department	My organization	Conference organizer	Journal/proceedings publisher	Professional association (other than your own organization)	National (government) library or other government office	Placed in a freely accessible archive	Placed in a commercial archive	Other	Commercial Publishing Group	Not Given	Total
Academia	54	5	9	137	3	0	4	0	0	3	3	218
	25%	2%	4%	63%	1%	0%	2%	0%	0%	1%	1%	100%
Industry	7	4	0	3	0	0	0	0	0	0	0	14
	50%	29%	0%	21%	0%	0%	0%	0%	0%	0%	0%	100%
GNHC	86	5	28	308	5	0	8	1	0	2	0	443
	19%	1%	6%	70%	1%	0%	2%	0%	0%	0%	0%	100%
Other	4	0	2	8	0	0	2	1	0	0	1	18
	22%	0%	11%	44%	0%	0%	11%	6%	0%	0%	6%	100%
Not Given	12	2	5	25	2	0	2	0	0	0	6	54
	22%	4%	9%	46%	4%	0%	4%	0%	0%	0%	11%	100%
<b>Total</b>	<b>163</b>	<b>16</b>	<b>44</b>	<b>481</b>	<b>10</b>	<b>0</b>	<b>16</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>747</b>
	<b>22%</b>	<b>2%</b>	<b>6%</b>	<b>64%</b>	<b>1%</b>	<b>0%</b>	<b>2%</b>	<b>0%</b>	<b>0%</b>	<b>1%</b>	<b>1%</b>	<b>100%</b>

**Q27: On which criteria did you base your choice when choosing how/where to publish (check all that apply)?**

Choice	Count	Percent
Prestige; it is on a shortlist of approved journals (promotion, funding)	470	66%
Dissemination; large circulation, relevant readership	502	70%
Timeliness; short time from submission to publication	198	28%
Availability; article would be available for free on the Web	150	21%
Ease of retrieval; journal is indexed in commercial or open access database	180	25%
Other:	8	1%
Not my choice/only one choice/invited/choice of others	21	3%
Focus of journal/appropriateness of article for specific journal	2	0%
Where article most likely/easily accepted	0	0%
<b>Total</b>	<b>1,531</b>	<b>214%</b>

714 responses out of 747 respondents; item response rate = 95.6%

*Q27a: By Field*

	Prestige	Dissemination	Timeliness	Availability	Ease of retrieval	Other	Not My Choice	Focus of Journal	Where Accepted	Total Respondents (100%)
Biological sciences	104	91	33	26	35	0	1	0	0	129
	81%	71%	26%	20%	27%	0%	1%	0%	0%	100%
Medical/health sciences	23	22	10	12	12	1	0	0	0	33
	70%	67%	30%	36%	36%	3%	0%	0%	0%	100%
Agricultural sciences	1	2	1	1	1	0	0	0	0	2
	50%	100%	50%	50%	50%	0%	0%	0%	0%	100%
Other life sciences	3	3	1	1	1	0	0	0	0	5
	60%	60%	20%	20%	20%	0%	0%	0%	0%	100%
Physical sciences	62	63	32	22	23	2	3	0	0	89
	70%	71%	36%	25%	26%	2%	3%	0%	0%	100%
Chemistry	26	34	12	8	11	0	0	1	0	48
	54%	71%	25%	17%	23%	0%	0%	2%	0%	100%
Engineering	14	13	6	3	6	1	3	0	0	28
	50%	46%	21%	11%	21%	4%	11%	0%	0%	100%
Earth sciences	9	12	4	5	2	2	0	0	0	18
	50%	67%	22%	28%	11%	11%	0%	0%	0%	100%
Physics and astronomy	108	137	42	36	51	2	4	0	0	179
	60%	77%	23%	20%	28%	1%	2%	0%	0%	100%
Math and computer sciences	52	53	24	21	15	0	1	0	0	76
	68%	70%	32%	28%	20%	0%	1%	0%	0%	100%
Science history, ethics, or philosophy	10	17	6	4	3	0	1	0	0	19
	53%	89%	32%	21%	16%	0%	5%	0%	0%	100%
Science education or administration	0	2	2	1	0	0	0	0	0	3
	0%	67%	67%	33%	0%	0%	0%	0%	0%	100%
Science publishing or media	1	2	0	1	0	0	1	0	0	3
	33%	67%	0%	33%	0%	0%	33%	0%	0%	100%

	Prestige	Dissemination	Timeliness	Availability	Ease of retrieval	Other	Not My Choice	Focus of Journal	Where Accepted	Total Respondents (100%)
Other social, behavioral or economic sciences	53	46	24	9	19	0	7	1	0	76
	70%	61%	32%	12%	25%	0%	9%	1%	0%	100%
Non-scientific Field	4	5	1	0	1	0	0	0	0	6
	67%	83%	17%	0%	17%	0%	0%	0%	0%	100%
<b>Total</b>	<b>470</b>	<b>502</b>	<b>198</b>	<b>150</b>	<b>180</b>	<b>8</b>	<b>21</b>	<b>2</b>	<b>0</b>	<b>714</b>
	<b>66%</b>	<b>70%</b>	<b>28%</b>	<b>21%</b>	<b>25%</b>	<b>1%</b>	<b>3%</b>	<b>0%</b>	<b>0%</b>	<b>100%</b>

**Q28: Did you keep the copyrights to your latest publication?**

Field of Scientist	Yes	No	Don't know	Percent Yes	No Response
Biological sciences	13	75	44	10%	6
Medical/health sciences	6	20	7	18%	2
Agricultural sciences	0	1	1	0%	0
Other life sciences	0	2	3	0%	0
Physical sciences	15	46	30	16%	3
Chemistry	17	22	10	35%	1
Engineering	8	13	7	29%	2
Earth sciences	2	9	8	11%	1
Physics and astronomy	16	89	75	9%	4
Math and computer sciences	13	40	25	17%	1
Science history, ethics, or philosophy	7	6	6	37%	1
Science education or administration	0	1	2	0%	0
Science publishing or media	1	0	2	33%	0
Other social, behavioral or economic sciences	11	33	32	14%	0
Non-scientific Field	0	2	4	0%	2
Other	0	0	0	0%	0
Not Given	0	0	0	0%	0
<b>Total</b>	<b>109</b>	<b>359</b>	<b>256</b>	<b>15%</b>	<b>23</b>

724 responses out of 747 respondents; item response rate = 96.9%

*Q28a: Breakdown by sector.*

	Yes	No	Don't know	Percent Yes	No Response
Academia	39	109	67	18%	3
Industry	6	6	2	43%	0
GNHC	55	218	168	12%	2
Other	3	6	9	17%	0
Not Given	6	20	10	17%	18
<b>Total</b>	<b>109</b>	<b>359</b>	<b>256</b>	<b>15%</b>	<b>23</b>

**Q29: Did you use alternative open access licensing models (e.g., Creative Commons) for your latest publication?**

Field of Scientist	Yes	No	Don't know	Percent Yes	No Response
Biological sciences	0	9	3	0%	1
Medical/health sciences	1	4	1	17%	0
Agricultural sciences	0	0	0	0%	0
Other life sciences	0	0	0	0%	0
Physical sciences	1	12	2	7%	0
Chemistry	1	10	6	6%	0
Engineering	1	6	1	13%	0

Field of Scientist	Yes	No	Don't know	Percent Yes	No Response
Earth sciences	0	2	0	0%	0
Physics and astronomy	1	9	5	7%	1
Math and computer sciences	3	4	6	23%	0
Science history, ethics, or philosophy	1	6	0	14%	0
Science education or administration	0	0	0	0%	0
Science publishing or media	0	1	0	0%	0
Other social, behavioral or economic sciences	1	8	2	9%	0
Non-scientific Field	0	0	0	0%	0
Other	0	0	0	0%	0
Not Given	0	0	0	0%	0
<b>Total</b>	<b>10</b>	<b>71</b>	<b>26</b>	<b>9%</b>	<b>2</b>

107 responses out of 109 respondents; item response rate = 98.2%

*Q29a: Breakdown by sector.*

	Yes	No	Don't know	Percent Yes	No Response
Academia	4	24	11	10%	0
Industry	0	5	1	0%	0
GNHC	6	36	13	11%	0
Other	0	3	0	0%	0
Not Given	0	3	1	0%	2
<b>Total</b>	<b>10</b>	<b>71</b>	<b>26</b>	<b>9%</b>	<b>2</b>

**Q30: Were you required to transfer copyright of your latest publication to any of the following (check all that apply)?**

Transfer to:	Count	Percent
Your organization	10	2%
Publishing organization or journal	371	78%
Sponsoring organization	3	1%
I was not required to transfer copyright	54	11%
Other:	0	0%
Not sure/don't know	44	9%
<b>Total</b>	<b>482</b>	<b>102%</b>

473 responses out of 480 respondents; item response rate = 98.5%

**Q31: As a result of transferring copyrights, have you experienced difficulty using your latest published material subsequently, e.g., sharing with colleagues, posting on a Web site, etc.?**

	Count	Percent
Yes	36	9%
No	326	77%
Not Applicable	20	5%
Not Sure/Don't know	41	10%
<b>Total</b>	<b>423</b>	<b>100%</b>

423 responses out of 480 respondents; item response rate = 88.1%

**Q32: Was your latest publication also placed in an electronic bibliographic service or index?**

	Count	Percent
Yes	522	73%
No	60	8%
Not Sure/Don't know	138	19%
<b>Total</b>	<b>720</b>	<b>100%</b>

720 responses out of 747 respondents; item response rate = 96.4%

**Q32A: Was your latest publication placed in a:**

	Count	Percent
National/governmental library (e.g., PubMed, Medline)	103	20%
Freely accessible archive	155	30%
Commercially accessible archive	191	37%
Other	0	0%
None of the Above	67	13%
<b>Total</b>	<b>516</b>	<b>100%</b>

516 responses out of 522 respondents; item response rate = 98.9%

**Q33: Since 1 January 2002, in order to protect your work, have you ever (check all that apply):**

	Count	Percent
Not published your research	41	6%
Published incompletely	56	8%
Delayed publication	90	13%
Maintained copyright control	20	3%
Instituted various legal devices (for example, contracts or End-User License Agreements)	10	1%
Used technological devices (Digital [Rights] Management tools (DRMs) or other smart software	8	1%
Other	5	1%
None of the above	536	77%
<b>Total</b>	<b>766</b>	<b>110%</b>

694 responses out of 747 respondents; item response rate = 92.9%

**Q34: Since 1 January 2002, have any difficulties associated with gaining access to or disseminating copyrighted works (membership fees, subscriptions, etc.) had an impact on your work?**

	Count	Percent
Yes	265	32%
No	451	54%
Not sure/don't know	121	14%
<b>Total</b>	<b>837</b>	<b>100%</b>

837 responses out of 967 respondents; item response rate = 86.6%

**Q35: Problems associated with accessing scientific literature had the following effect(s) on your work (check all that apply):**

	Count	Percent
I have not had problems associated with accessing scientific literature	13	5%
There were no effects on my research	22	8%
They delayed my research less than one month	150	57%
They delayed my research for one month or more	54	21%
I had to change the research approach	28	11%
I had to abandon my research project	5	2%
There were other effects on my research. Please explain.	2	1%
Loss of research funds to pay for access or to duplicate work	2	1%
Less background research done	16	6%
Unspecified delay of work	5	2%
<b>Total</b>	<b>297</b>	<b>113%</b>

262 responses out of 265 respondents; item response rate = 98.9%

**Q36: Over the past (3) years, have you used open access publications:**

Choice	Count	Percent
Not at all	78	9%
Less frequently than before three years	11	1%
About the same as before three years ago	199	24%
More frequently than before three years ago	429	52%
Don't know, only active in research since _____ (enter year here)	59	7%
Not sure/don't know	55	7%
<b>Total</b>	<b>831</b>	<b>100%</b>

831 responses out of 967 respondents; item response rate = 85.9%

**Q37: Do you agree that your access to the scientific literature (in general) over the past three years has become:**

Choice	Count	Percent
Easier	481	58%
Is about the same	222	27%
More difficult	61	7%
Much more difficult	7	1%
Don't know, only active in research since _____ (enter year here)	40	5%
Not sure/don't know	21	3%
<b>Total</b>	<b>832</b>	<b>100%</b>

832 responses out of 967 respondents; item response rate = 86%

**Q38: Since 1 January 2002, in your work, have you used (or tried to use) data from publicly funded sources (that you yourself did not produce)?**

Field of Scientist	Yes	No	Percent Yes	No Response
Biological sciences	104	47	69%	30
Medical/health sciences	23	17	58%	8
Agricultural sciences	1	1	50%	0
Other life sciences	3	7	30%	2
Physical sciences	53	44	55%	18
Chemistry	29	25	54%	14
Engineering	17	19	47%	9
Earth sciences	16	1	94%	5
Physics and astronomy	119	81	60%	22
Math and computer sciences	40	49	45%	16
Science history/ethics/philosophy	15	7	68%	0
Science education/administration	4	0	100%	0
Science publishing or media	1	2	33%	0
Other social, behavioral or economic sciences	35	49	42%	11
Non-scientific Field	8	4	67%	6
Other	0	0	0%	0
Not Given	0	0	0%	5
<b>Total</b>	<b>468</b>	<b>353</b>	<b>57%</b>	<b>146</b>

821 responses out of 967 respondents; item response rate = 84.9%

*Q38a: By Sector.*

Sector of Scientist	Yes	No	Percent Yes	No Response
Academia	139	109	56%	5
Industry	10	7	59%	0
GNHC	288	215	57%	6
Other	10	11	48%	0
Not Given	21	11	66%	135
<b>Total</b>	<b>468</b>	<b>353</b>	<b>57%</b>	<b>146</b>

**Q39: Since 1 January 2002, have you experienced any difficulties in obtaining data from publicly funded sources?**

Field of Scientist	Yes	No	Don't Know	Percent Yes	No Response
Biological sciences	19	66	19	18%	0
Medical/health sciences	4	16	3	17%	0
Agricultural sciences	1	0	0	100%	0
Other life sciences	0	3	0	0%	0
Physical sciences	9	37	7	17%	0
Chemistry	9	19	1	31%	0
Engineering	4	12	0	25%	1
Earth sciences	6	7	3	38%	0
Physics and astronomy	12	86	20	10%	1
Math and computer sciences	13	24	3	33%	0
Science history/ethics/philosophy	1	10	4	7%	0
Science education/administration	1	3	0	25%	0

Field of Scientist	Yes	No	Don't Know	Percent Yes	No Response
Science publishing or media	0	0	1	0%	0
Other social, behavioral or economic sciences	5	24	6	14%	0
Non-scientific Field	3	4	0	43%	1
Other	0	0	0	0%	0
Not Given	0	0	0	0%	0
<b>Total</b>	<b>87</b>	<b>311</b>	<b>67</b>	<b>19%</b>	<b>3</b>

465 responses out of 468 respondents; item response rate = 99.4%

*Q39b: By Sector.*

Sector of Scientist	Yes	No	Don't Know	Percent Yes	NR
Academia	25	98	14	18%	2
Industry	3	7	0	30%	0
GNHC	55	185	47	19%	1
Other	0	7	3	0%	0
Not Given	4	14	3	19%	0
<b>Total</b>	<b>87</b>	<b>311</b>	<b>67</b>	<b>19%</b>	<b>3</b>

**Q40: Thinking back to the last time you had difficulty in obtaining data from publicly funded sources, which if any of the following difficulties did you experience (check all that apply)?**

Choice	Count	Percent
There was a substantial delay in the transfer	31	37%
Legal terms and conditions were problematic	23	27%
Costs were high.	25	30%
Other difficulties in obtaining the data.	4	5%
Access was denied	31	37%
Technical Difficulty in Access/Difficult to Locate	18	21%
<b>Total</b>	<b>132</b>	<b>157%</b>

84 responses out of 87 respondents; item response rate = 96.6%

**Q41: Thinking back to the last time you had difficulty in obtaining difficulty from publicly funded sources, the following reasons were given for denying your request for access to data from a publicly funded source (check all that apply):**

Choice	Count	Percent
No reason was given	0	0%
Results based on those data were not yet published by the producer of the data	3	13%
Results based on those data had been published, but the data were withheld anyway	10	42%
Data were produced in support of proprietary research	5	21%
Period of exclusive use under the data producer's research grant or contract had not yet expired	5	21%
Data only available to researchers in a specific research program, in which you were not a participant	6	25%
Your uses of the data would be proprietary	2	8%
Data only available to researchers in a specific country, of which you were not a citizen	6	25%
Data were classified as secret or sensitive by the government and you did not have the appropriate security clearance	5	21%
Data could not be disclosed in order to protect the privacy of human subject(s)	1	4%
Producer of the data stated that the rights in the data could not be adequately protected	6	25%
Other reasons. Please explain:	1	4%
Not applicable	3	13%
<b>Total</b>	<b>53</b>	<b>221%</b>

24 responses out of 31 respondents; item response rate = 77.4%

**Q42: Thinking back to the last time you had difficulty in obtaining data from publicly funded sources, the denial of access to the data that you were requesting had the following effect(s) on your research (check all that apply):**

Choice	Count	Percent
There were no effects on my research	1	4%
It delayed my research less than one month	9	32%
It delayed my research by one month or more	7	25%
I had to produce similar data myself or within my research group	9	32%
I had to find another source for data that was a satisfactory substitute	9	32%
I had to find another source for data that was not a satisfactory substitute	11	39%
I had to change the research approach	8	29%
I had to abandon my research project	4	14%
There were other effects on my research.	0	0%
<b>Total</b>	<b>58</b>	<b>207%</b>

28 responses out of 31 respondents; item response rate = 90.3%

**Q43: Thinking back to the last time you had difficulty in obtaining data from publicly funded sources: overall, difficulties in obtaining data from a publicly funded source had:**

Choice	Count	Percent
Serious negative effect(s) on my research	11	13%
Some negative effects(s) on my research	56	67%
No effect(s) on my research	6	7%
Some positive effect(s) on my research	2	2%
Serious positive effect(s) on my research	0	0%
Not applicable	2	2%
Not sure/don't know	6	7%
<b>Total</b>	<b>83</b>	<b>100%</b>

83 responses out of 87 respondents; item response rate = 95.4%

**Q44: In your view, how has the situation changed since 1 January 2002, in terms of obtaining access to data from publicly funded sources?**

Choice	Count	Percent
It has become easier	23	27%
It has become more difficult	12	14%
The situation has remained about the same	27	32%
Don't know, only active in research since: __	9	11%
Don't know	14	16%
<b>Total</b>	<b>85</b>	<b>100%</b>

85 responses out of 87 respondents; item response rate = 97.7%

**Q45: Since 1 January 2002, have you denied requests from others for data you have produced with funding from public sources?**

Choice	Count	Percent
I did not produce any data using public funding during this time period	95	21%
No, I have not denied access to the data I produced from my publicly funded research	313	69%
No, I have not denied access to the data I produced from my publicly funded research, but I placed certain conditions on access to those data.	16	4%
No, I have not denied access to the data I produced from my publicly funded research, but I placed certain conditions on the use of those data.	8	2%
Yes, I have denied access to the data I produced from my publicly funded research.	8	2%
Not sure/don't know	14	3%
<b>Total</b>	<b>454</b>	<b>100%</b>

454 responses out of 468 respondents; item response rate = 97%

**Q46: Since 1 January 2002, have you experienced difficulties in using data from publicly funded sources (check all that apply)?**

Choice	Count	Percent
I have not experienced difficulties in using data from publicly funded sources	340	79%
The data had scientific deficiencies	41	9%
The data had technical problems	51	12%
The data had legal proprietary restrictions on re-use based on national legislation (e.g., database protection legislation)	17	4%
The data had legal proprietary restrictions on re-use based on funding agency regulations	12	3%
The data had legal proprietary restrictions on re-use based on licensing terms	17	4%
The legal restrictions on re-use were enforced by technological means	7	2%
There were other difficulties in using the data.	3	1%
<b>Total</b>	<b>488</b>	<b>113%</b>

432 responses out of 468 respondents; item response rate = 92.3%

**Q47: Difficulties in using data from a publicly funded source have had:**

Choice	Count	Percent
Serious negative effect(s) on my research	8	9%
Some negative effects(s) on my research	53	58%
No effect(s) on my research	16	18%
Some positive effect(s) on my research	3	3%
Serious positive effect(s) on my research	2	2%
Not applicable	2	2%
Not sure/don't know	7	8%
<b>Total</b>	<b>91</b>	<b>100%</b>

91 responses out of 93 respondents; item response rate = 97.8%

**Q48: We would like to learn about your opinion/view on proprietary technologies in your area of work.**

	Haven't thought much about that or not applicable	Disagree strongly	Disagree somewhat	Neither agree nor disagree	Agree somewhat	Agree strongly	Total response
Intellectual property rights provide incentives to invent and make discoveries	129	93	105	107	251	94	779
	17%	12%	13%	14%	32%	12%	100%
Intellectual property rights impair the free and open exchange of material and/or research results	81	49	79	85	292	187	773
	10%	6%	10%	11%	38%	24%	100%
Proprietary technologies are easily exchanged through licensing and material transfer agreements	181	98	207	122	130	34	772
	23%	13%	27%	16%	17%	4%	100%
Obtaining access to proprietary technologies often involves contractual restrictions on publications that cause significant constraint[s] on academic freedom	211	23	67	93	279	99	772
	27%	3%	9%	12%	36%	13%	100%
Access to proprietary technologies has improved over the past 5 years	317	39	65	211	100	34	766
	41%	5%	8%	28%	13%	4%	100%
<b>Overall, intellectual property protections are having a POSITIVE impact on my conduct in science</b>	<b>184</b>	<b>154</b>	<b>150</b>	<b>176</b>	<b>71</b>	<b>34</b>	<b>769</b>
	<b>24%</b>	<b>20%</b>	<b>20%</b>	<b>23%</b>	<b>9%</b>	<b>4%</b>	<b>100%</b>

779 responses out of 967 respondents; item response rate = 80.6%

773 responses out of 967 respondents; item response rate = 79.9%

772 responses out of 967 respondents; item response rate = 79.8%

772 responses out of 967 respondents; item response rate = 79.8%

766 responses out of 967 respondents; item response rate = 79.2%

769 responses out of 967 respondents; item response rate = 79.5%

**Q49: In what type of institution is your main employment?**

	Academia	Industry	GNHC	Other	Not Given	Total
Biological sciences	42	5	93	3	38	181
Medical/ health sciences	18	2	16	3	9	48
Agricultural sciences	0	1	1	0	0	2
Other life sciences	3	0	7	0	2	12
Physical sciences	19	3	67	2	24	115
Chemistry	25	3	24	3	13	68
Engineering	15	1	18	1	10	45
Earth sciences	4	0	11	1	6	22
Physics and astronomy	36	1	154	4	27	222
Math and computer sciences	48	0	39	2	16	105
Science history, ethics, or philosophy	10	0	9	1	2	22
Science education or administration	2	0	1	1	0	4
Science publishing or media	0	0	3	0	0	3
Other social, behavioral or economic	26	0	59	0	10	95
Non-scientific Field	5	1	6	0	6	18
Other	0	0	0	0	0	0
Not Given	0	0	1	0	4	5
<b>Total</b>	<b>253</b>	<b>17</b>	<b>509</b>	<b>21</b>	<b>167</b>	<b>967</b>

800 responses out of 967 respondents; item response rate = 82.7%

**Q50: In which country do you primarily conduct your research/work?**

Country	Count	Percent
United States	16	2%
Austria	3	0%
Canada	2	0%
China	8	1%
Columbia	2	0%
Croatia	1	0%
France	3	0%
Germany	699	72%
Greece	1	0%
Hungary	1	0%
India	7	1%
Iran	2	0%
Israel	1	0%
Italy	3	0%
Japan	1	0%
Netherlands	28	3%
Romania	1	0%
Russia	3	0%
Singapore	1	0%
South Africa	1	0%

Country	Count	Percent
Spain	2	0%
Sweden	1	0%
Switzerland	4	0%
Ukraine	2	0%
UK	9	1%
Not Given	165	17%
<b>Total</b>	<b>967</b>	<b>100%</b>

**Q51: What is your gender?**

Field	Male	Female	Other	Percent Male	No Response
Biological sciences	97	42	0	70%	42
Medical/health sciences	27	12	0	69%	9
Agricultural sciences	1	1	0	50%	0
Other life sciences	0	10	0	0%	2
Physical sciences	77	10	2	87%	26
Chemistry	40	14	0	74%	14
Engineering	30	2	0	94%	13
Earth sciences	13	3	0	81%	6
Physics and astronomy	154	32	0	83%	36
Math and computer sciences	70	13	1	83%	21
Science history, ethics, or philosophy	17	3	0	85%	2
Science education or administration	2	0	0	100%	2
Science publishing or media	2	1	0	67%	0
Other social, behavioral or economic sciences	43	37	0	54%	15
Non-scientific Field	9	2	0	82%	7
Other	0	0	0	0%	0
Not Given	0	1	0	0%	4
<b>Total</b>	<b>582</b>	<b>183</b>	<b>3</b>	<b>76%</b>	<b>199</b>

765 responses out of 967 respondents; item response rate = 79.1%

**Q51a: By Sector.**

Sector	Male	Female	Other	Percent Male	No Response
Academia	197	45	0	81%	11
Industry	14	3	0	82%	0
GNHC	349	134	3	72%	20
Other	19	0	0	100%	2
Not Given	3	1	0	75%	163
<b>Total</b>	<b>582</b>	<b>183</b>	<b>3</b>	<b>76%</b>	<b>199</b>

**Q52: How many years of professional work experience do you have?**

Years	Males	Females	Other	Not Given	Total
0-4	136	72	0	8	216
	63%	33%	0%	4%	100%
5-9	124	58	2	6	190
	65%	31%	1%	3%	100%
10-19	120	26	1	5	152
	79%	17%	1%	3%	100%
20-29	68	13	0	7	88
	77%	15%	0%	8%	100%
30+	134	14	0	9	157
	85%	9%	0%	6%	100%

Years	Males	Females	Other	Not Given	Total
Not Given	0	0	0	164	164
	0%	0%		100%	100%
<b>Total</b>	<b>582</b>	<b>183</b>	<b>3</b>	<b>199</b>	<b>967</b>
	<b>60%</b>	<b>19%</b>	<b>0%</b>	<b>21%</b>	<b>100%</b>

765 responses out of 967 respondents; item response rate = 79.1%

**Q53: What degrees have you obtained (check *all* that apply)?**

Education	Count	Percent
Abitur, Zeugnis der Reife, Zeugnis der Allgemeinen Hochschulreife (pre-University)	595	74%
Vordiplom, Zwischenpruefung, Aertzliche Vorpruefung, Diplom-Vorpruefung	534	67%
Diplom, Staatsexamen, Magister Artium, Erste Juristische Staatspruefung, Referendarexamen, Arzt, Zahnarzt (Masters)	600	75%
Doktor, Promotion (Doctorate)	531	66%
Habilitation	155	19%
Other	18	2%
<b>Total</b>	<b>2,433</b>	<b>305%</b>

799 responses out of 967 respondents; item response rate = 82.6%

**Q54: Has any of your research been funded or paid for by (check all that apply):**

	Count	Percent
National, State or local governmental grants, contracts, or employment	589	74%
European Union or other IGO grants, contracts, or employment	315	40%
Research councils	427	54%
University sponsorship (from a university other than your own university or college)	143	18%
Industry sponsorship (from a company other than your own company or institution)	139	18%
Research and Development supported by your company/university	188	24%
Nonprofit, non-government sources	255	32%
Other personal or private funding	51	6%
Other:	3	0%
Not applicable	40	5%
<b>Total respondents</b>	<b>2,150</b>	<b>271%</b>

794 responses out of 967 respondents; item response rate = 82.1%