

A large, abstract graphic consisting of several overlapping, wavy, translucent blue bands of varying shades, creating a sense of movement and depth. It spans across the top and middle of the page.

A GRACE PERIOD FOR PATENTS

COULD IT HELP EUROPEAN
UNIVERSITIES INNOVATE?

A survey of European technology transfer
offices on patent practice and perceptions

4 June 2013

This report was commissioned by the Science|Business Innovation Board AISBL. The Board is a Belgian not-for-profit scientific association that performs original policy research, engages with policymakers and the press, and works generally to improve the climate for innovation in Europe. Its members include Science|Business, Aalto University, ESADE Business School, GE, INSEAD, Microsoft, BP, SKF and Imperial College London. Further information, including other innovation-policy research, is at www.sciencebusiness.net.

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EXECUTIVE SUMMARY

European researchers working to advance technology frontiers face a dilemma. To keep their academic careers on track they must publish the results of their work as quickly as possible and present scientific breakthroughs at scholarly conferences. But to reap the benefits of possible commercial applications for themselves and their universities, they must remain silent until a patent is filed.

Many of the world's most innovative societies, including the US and Korea, resolve that conflict with a legal grace period, which allows inventors to have it both ways: disclose the discovery in a technical paper or conference, and then have a further six to 12 months to file a patent application. The US grace period was established nearly 200 years ago, and has since spread to many other inventing nations. But no meaningful grace period exists in Europe, and the idea of implementing one has been controversial, with opinions varying by country and sector.

To understand these attitudes in the university sector, an important source of innovation in Europe, the Science|Business Innovation Board with partners Imperial Innovations PLC and Foley & Lardner LLP conducted a survey of university tech transfer offices across Europe from November 2012 to January 2013.

From February 2013 to April 2013, we also conducted individual interviews with TTO managers to provide more detailed views of the key factors affecting premature disclosure highlighted in the survey, and specific examples of the problem. The findings include:

- European technology transfer managers surveyed and working on the front lines patenting new inventions agree 2-to-1 that a grace period is needed in Europe. Many say making the system compatible with those in the US and Japan

would remove a significant disadvantage for academic researchers and increase patenting activity in Europe.

- More than half of European technology transfer offices (TTOs) feel often at risk of losing patent opportunities due to premature public disclosures of an invention.

Thus, the lack of a meaningful grace period in Europe may mean many discoveries based on research conducted at EU universities and other higher education institutes (HEIs) are either not patented, or are patented only in countries where a grace period exists. Also, a more restrictive approach to patent protection in Europe compared with other countries may render the EU innovation landscape less attractive to venture capitalists and corporate investors, who value patents highly as key portfolio assets. Certainly, many university officials feel strongly about the issue. In an interview for this research, Jörg Steinbach, president of the Technical University of Berlin, stated that “a grace period for patenting intellectual property would boost technology transfer at German universities”.

Likewise, several technology transfer officers across Europe provided anecdotal evidence of patents lost due to the problem. Ingrid Kelly, European patent attorney and technology transfer manager at the University of Vienna, said her office is currently dealing with such a case – a potentially patentable innovation in microelectronics – brought to her attention in late February 2013. “The crux of the invention was exposed in a poster publication last September. Now, we have to take the time to assess the invention in full. But my feeling is that we can forget protecting the invention anywhere in the world except the US due to the grace period problem.” But some other technology transfer officers also noted reservations, suggesting that the grace period could give competing researchers time to build on their work.

Could European universities do a better job in schooling researchers to patent before publishing? And could their TTOs file patent applications much faster? Educating researchers about patenting is already a top priority for many universities. Two-thirds of respondents to our survey have established formal education programmes for researchers to pre-empt the problem of premature disclosure and 46 per cent disseminate information to them highlighting the risks of publishing before patenting.

But education alone does not address many of the situations that lead to premature disclosure. Even when researchers are made aware of the risk, a lost opportunity to patent will not deter them from publishing if academic demands and career opportunities are at stake, TTO managers say.

But this study deals with only part of the innovation landscape, the publicly funded university sector. That is because, as a group, European universities have been changing in the past few decades, under mounting pressure to show economic return

for their research; thus, in contrast to past, local samplings of university opinion by others, this study suggests that the bulk of academic opinion in Europe has swung in favour of a grace period. But this study does not systematically address the views of the private sector, for which a grace period is a more complex question.

Our preliminary research among businesses found a wide range of opinion with no obvious pattern. Some companies, especially those familiar with a grace period system in their own countries, support its extension to Europe. But others oppose it, for fear it will undermine what they regard as an already-good European patent system. Those opposed to a grace period for Europe argue that it will add uncertainty – leading to more frequent disputes in court about priority. That is something that Europe currently manages with a very simple rule: priority is established by being first to file.

Adding a grace period to the equation, in this view, muddies the waters. Thus, we urge further study of business attitudes – small and large – to this equation before any policy decision is made.

1

INTRODUCTION

There is an inherent conflict in the system for protecting inventions around the world. On one hand, society rewards university researchers for publishing their discoveries in scientific journals, conferences and other places. Doing so advances science – and their own careers, as publication record is a standard criterion of academic success. On the other hand, society increasingly expects them and their institutions to make money from their discoveries, by patenting. Doing so advances the economy, and permits others to invest without fear of intellectual theft. Thus, the idea of a “grace period” has developed in several countries to balance these conflicts.

In these countries, a university professor who publishes a technical article describing a discovery may still file a patent application on his invention during the grace period. The technical article would not preclude a patent on the discovery. Historically, grace periods have come in a variety of forms, some more generous than others, with various mechanisms for excusing pre-filing disclosures. The most basic grace period, for example, would excuse early disclosure due to theft or fraud or breach of a confidentiality agreement.

Among the countries leading globally in patent applications, the trend is towards expanding grace periods. In 2012, Japan expanded its grace period to include within its scope essentially any form of disclosure by the inventor, including sales. Korea extended its grace period in March 2012 from six to 12 months and, as was done in Japan, to include any form of inventor disclosure. Japan ranks no. 1 globally in patent applications. Korea is no. 4, just behind the US and China – ahead of Germany, France and the UK.

There are many advocates for creating a meaningful grace period in Europe, as well. They argue it could serve two goals. First, it would benefit universities and small enterprises by lowering the risk of losing patent rights through publication or otherwise disclosing the invention prior to filing a patent application. Second, a

European grace period would advance international harmonisation of patent law, particularly with respect to other innovating nations, such as Japan, the US and South Korea, whose patent systems have meaningful grace periods.

The proponents further argue that, following the recent passing of the America Invents Act (AIA), the European Union is now at a competitive disadvantage to the US with respect to patented intellectual property rights arising from academia. The recent changes to US patent law, which attempt to harmonise aspects such as first-to-file, have in fact drawn attention to the inequities of this system for higher education institutes (HEIs) applying for patents in Europe as a result of the lack of a viable grace period for prior disclosures.

Presently the filing system in Europe allows for only very limited disclosures prior to the filing date: namely, breach of confidence or disclosure at a very limited list of acknowledged trade fairs (see, for instance, Section 2(4) of the UK Patents Act and Article 55 of EPC 2000). In the US, as well as in many other jurisdictions (including Australia, Brazil, Japan, South Korea and Canada, nearly all of Latin America and several Eastern European states), there is provision for a grace period or “statutory bar”, which allows for disclosures of the invention six to 12 months prior to filing.

There has been much discussion about trying to “standardise” the approach to filing dates and prior disclosures worldwide. As part of a significant recent move in this direction, there have been changes to patent law in the US, brought about as part of the AIA. These changes have not removed the grace period, but limit allowable disclosures to those made by the inventor or someone deriving the invention freely from the inventor.

The main criticism levelled against grace periods is legal uncertainty. Opponents suggest that grace periods raise the risk of greater delay before patent applications become publicly known, because they reduce the pressure to file quickly. Such delay can harm competitors in the marketplace who might be investing capital to develop technology potentially blocked by a resulting patent. Grace periods can also complicate determinations of patent validity, because the scope of relevant facts may be enlarged to include information not readily available to the public. There may even be uncertainty in interpreting the legal standard for a grace period. In the US, for example, the pre-AIA grace period scope is far from simple, and the proper scope of the AIA grace period has already generated some controversy.

Since the AIA, US officials have become louder and louder in their urging of Europe to adopt a grace period. “As we move to a system that will serve the economic interests of the entire world, it would be beneficial to have a patent system which is as close to uniform as possible,” said Randall R. Rader, chief judge of the US Court of Appeals for the Federal Circuit, speaking at a 7 May 2012 Science | Business conference in

Washington DC on boosting trade through a harmonised patent system. “What really is at stake is the public getting access to more technology,” said Rader. “Without patent protection, an inventor cannot get investment, create manufacturing plants and make it into a technology accessible to the public. A lot of good ideas that can benefit our society get lost for a lack of support.”

This drive to harmonise international patent systems has prompted the world’s five largest patent offices representing Europe (EPO), the US (USPTO), Japan (JPO), South Korea (KIPO) and China (SIPO), to add the study of a grace period to a programme of research they have commissioned jointly in the past year¹. That study, organised by the USPTO, is an effort to quantify the effects of premature disclosure on researchers’ failure to apply for or receive patent. As part of the study, the USPTO has begun surveying researchers from select EU institutions that have published journal articles disclosing potentially patentable materials during a five-year period. The data collected from the survey can be used to estimate the value of lost commercial opportunities in Europe due to the lack of a grace period for patents.

But the US evangelism on this topic has prompted some doubts among officials at the European Commission and the European Patent Office – and perhaps a feeling that the US is pushing too hard. That makes it uncertain that a grace period could be adopted any time soon in Europe. Certainly, Commission officials have said, it is not a high-priority item compared with the other things on their plates – such as implementation of a new, EU-wide “unitary patent”. Further, some European policy makers feel, a stronger economic case for a grace period would be needed before they would risk another change in the patent system.

1 Federal Register Volume 77, Number 237 (10 December 2012)

Notices: Pages 73452-73453. From the Federal Register Online via the Government Printing Office [www.gpo.gov][FR Doc No: 2012-29637]

INTERNATIONAL COMPARISON

Of the regions with the largest developed economies and generating the lion's share of patents worldwide, the US, Japan and Korea have grace periods while Europe does not. The table in Annex III lists the 38 countries worldwide that have a grace period, including 12 with very limited grace periods that do not protect against pre-filing publication by the inventor.

The European Patent Convention (EPC) provides grace periods of extremely limited practical effect, and EPC member states have largely adopted the same approach.¹ As a result, European academics do not have the same flexibility as academic inventors in other competitive markets for innovation. The vast majority of EU researchers who disclose their discoveries before filing patent applications forfeit their chances of obtaining patent protection in Europe.

Notably, the EPC grace period does not excuse pre-filing disclosures by inventors. The grace period, set forth in Article 55 of the EPC and reproduced in Annex I, excuses only disclosures made in a limited number of “officially recognised, international exhibitions” or unauthorised disclosures by a third party constituting “abuse” of the applicant. The exception for abusive disclosures by a third party is quite limited, however, in that it requires a deliberate intent to harm the patent applicant and does not apply to mere negligence or breaches of confidentiality.²

The US provides an example of a grace period that is relatively broad in scope, while Japan provides an example of a grace period that is narrower. The US first introduced a grace period for patenting nearly 200 years ago by the following provision³:

[E]very person or corporation who has, or shall have, purchased or constructed any newly invented machine, manufacture, or composition of matter, prior to the application by the inventor or discoverer for a patent, shall be held to possess the right to use, and vend to others to be used, the specific machine, manufacture,

1 See Annex 1

2 See EPO Board of Appeal decision T436/92 of 20.3.1995 (available at <http://www.epo.org/law-practice/case-law-appeals/recent/t920436eu1.html>).

3 Patent Act of 1839, Section 7 (emphasis added).

or composition of matter so made or purchased, without liability therefore to the inventor, or any other person interested in such invention; and no patent shall be held to be invalid by reason of such purchase, sale, or use prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public; or that such purchase, sale, or prior use has been for more than two years prior to such application for a patent.

Since then, the US grace period has undergone a number of refinements, including shortening the time frame from 2 years to 1 year. Annex II provides the text of the US grace period under the AIA.

The Japanese grace period⁴ under Section 30 of the Japanese Patent Law is less generous to inventors than the US grace period, in that the Japanese grace period is shorter, does not address disclosures by third parties, and requires identification of the relevant disclosure at the time of filing the patent application.

The grace period in Japan is six months counting back from the actual filing date at the Japanese Patent Office (JPO). The US grace period is one year counting back from the earliest effective filing date, which for AIA patents can be the filing date of a corresponding application filed outside the US. The Japanese grace period applies only if the applicant identifies the disclosure in a declaration called a “proof document”, submitted at the time of filing the patent application. The Japanese grace period relates only to disclosures by the applicant and does shield against disclosures by a third party. There is an exception for third-party disclosures made against the applicant’s will, or a third-party disclosure that was derived from the applicant’s earlier disclosure as identified in the proof document.

In the US, the pre-AIA grace period applies to patents and patent applications that do not fall under the grace period provisions of the AIA. Such pre-AIA patents are those having an effective filing date before 16 March 2013 (with some exceptions).⁵

According to an April 2013 study on knowledge transfer, American universities and research organisations are better than European counterparts at producing invention disclosures, patent applications and license income.⁶ On average, license income equals 1.5 per cent of the research expenditures by universities and research institutes in Europe, whereas in the US it equals 4 per cent of research expenditures, the study reported.

4 The author’s comments on the Japanese grace period are based on “Study Mandated By The Tegernsee Heads—Grace Period” (24 September 2012)” by the Tegernsee Experts Group (available at http://www.uspto.gov/ip/global/grace_period.pdf).

5 This sentence omits details of the criteria for establishing pre-AIA status, which is determined on a claim-by-claim basis, but is outside the scope of this article.

6 Respondent Report of the Knowledge Transfer Study, 2012, Anthony Arundel et al, Empirica GmbH, Fachhochschule Nordwestschweiz and UNU-MERIT for the European Commission, DG Research and Innovation

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THE COMPETITION ARGUMENT

It is well known that in academic institutions, the ability to file a patent before any prior disclosure by the inventor is very often in conflict with the academic need to publish or present research. Often the act of pulling data or results together into the final form required for scientific publication is the first indication that an academic may have a patentable invention of commercial value. By this stage, time pressures for submitting papers for review, or applying to speak at conferences, mean that it is very easy for disclosures to be made before a patent can be filed.

One workaround used by many European universities is to make a so-called priority filing in the US, to take advantage of the grace period in the large American market. But that is expensive, and most academic institutions do not have the benefit of large teams of in-house attorneys and the back-up resource of formalities staff, nor the extensive patent budgets enjoyed by many industrial companies for last-minute patent filings. HEIs often have to use external lawyers to prepare and file patents, which means that the typical cost for a priority filing is €6,000 to €7,000. While filings can be made more quickly and at a lower cost, they risk lack of priority or enablement if the appropriate discussions between the inventor and attorney have to be curtailed.

The result is that many patents have either not been filed, or have been filed at greater cost in countries where such a grace period does exist. Consequently, some potentially commercially useful inventions do not receive patent protection. Exactly how many is unknown, but this research finds that, at least among university technology transfer professionals, the belief is that it is quite a large number.

Prior to the Europe-wide survey reported here, four top-ranked universities in the UK (Cambridge, Oxford, Imperial College London and University College London) each investigated to what extent they have resorted to grace period filings outside the UK over the preceding five years. The picture is very consistent: overall, an average of 15 per cent of their total number of priority filings consisted of direct US priority filings, the overwhelming majority of which (if not all) were made as a result of prior

disclosures. This number in itself is an underestimate, as it cannot take into account cases that simply were not filed due to the inability to justify the investment without extensive protection in all of the major global territories, or in some cases where a direct PCT filing was made to capture grace periods in several countries. Given that between these four institutions alone, over 200 priority applications are filed each year, when extrapolated over all HEIs in the UK, this represents a substantial number of inventions that have either limited or no IP protection.

The consequences could be economically significant. Patent protection supports innovation, providing an economic benefit to investors who take the risk to commercialise new technologies. Many potential investors who negotiate with spin-out companies say patents are key criteria in their investment decisions. In a recent report published by the University of California, Berkeley, 67 per cent of companies negotiating with venture capital firms reported that patents were an important factor in the overall investment decision. Broken down by industry, the figures were: 60 per cent for software companies, 73 per cent for biotech, and 85 per cent for medical devices. Substantial percentages of other types of investors, such as angels, investment banks and other companies also found patents important to their investment decisions, according to the report.

The reason is clear. Patents offer a myriad of advantages to spin-outs, helping to prevent infringement lawsuits, providing leverage in cross-licensing negotiations, and acting as “signals” of firm competency, which drive investment. Finally, investors favour start-ups with patents because they provide marketable assets if the companies fail in the market.

But to work as a magnet for investors, IP protection must extend to all relevant markets. Potential licensing partners or investors expect their interests to be protected in major territories. Thus, the lack of a grace period in Europe could mean a loss of revenue not only for the HEIs, but ultimately for the European economies.

4

RESEARCH RESULTS

This survey, carried out by the Science|Business Innovation Board and its partners, provides an assessment of current attitudes towards a grace period at European universities and research institutes. It finds that many academic researchers see premature public disclosure of their discoveries as a recurring problem and strongly favour a grace period – by 2 to 1. This is a significant margin. The results are clear: Most European technology transfer professionals want a grace period.

In Europe, the population size of universities working regularly with patentable, technical research is estimated to be around 500, based on a 2008 report by ERAWATCH, the European Commission's information platform on European, national and regional research systems and policies. The report states that the 27 Member States of the European Union have 918 universities – 864 public and 54 private – and 1,850 other tertiary education institutions such as technical colleges. Research activities are concentrated in fewer than 500 of these institutions, most of which are public universities, according to the report.

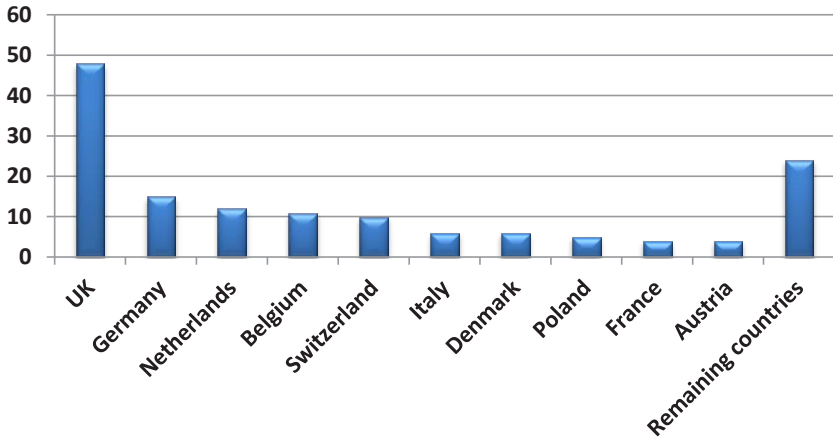
Our survey received a total of 147 responses from the relevant institutions, conducted online from November 2012 to January 2013. To reach the TTOs, the authors used Science|Business' own database and benefited from notices that two technology professional associations, ASTP and ProTon Europe, sent out to their own members. Based on these figures, the results have a margin of error of 5.71 per cent (at a confidence factor of $p=.90$)

THE INCENTIVE TO PUBLISH

When asked how often they feel premature public disclosure contributed to an actual loss of patent protection for their organisation last year, the majority of respondents stated that it is a situation that occurs fairly often or at least occasionally.

The loss of patent protection due to public disclosure – through publication or a speaking engagement at an academic conference – is a key dilemma for university TTOs in Europe. The academic system is designed to be an open environment

The graph below indicates the total number of completed surveys from each country.



A total of 21 countries are represented in this survey. The table shows the actual number of organisations that participated rather than the total number of respondents from each country

Country	# of individual contributing organisations
UK	44
Germany	15
Netherlands	11
Italy	8
Switzerland	7
Belgium	7
Denmark	6
Poland	5
France	4
Austria	4
Portugal	4
Spain	4

Country	# of individual contributing organisations
Sweden	3
Hungary	3
Finland	2
Czech Rep.	2
Norway	1
Ireland	1
Malta	1
Slovenia	1
Bulgaria	1

in which ideas and discoveries are shared. Researchers work under constant professional pressure to publish and talk about their work, both to advance their academic careers and receive grants. For many researchers, the academic imperative to make their research findings public as quickly as possible outweighs the value of remaining silent for months or longer while compiling the evidence and documentation required to patent a file, which make take TTOs up to a year to complete.

In addition, university researchers and TTOs typically lack the legal teams and resources that allow companies to patent promptly. While some opponents of a European grace period argue that educating researchers is the best approach to preventing premature public disclosure, it does not address the career pressures and limited resources for the patenting process that often leads academics to forego the time-consuming process of filing for a patent. Follow-up interviews with European TTO managers highlight in greater detail how the lack of a grace period in Europe puts researchers at European higher education institutions at a clear disadvantage in capturing the value of their scientific endeavour vis-à-vis those in countries that have a grace period, such as the US and Japan.

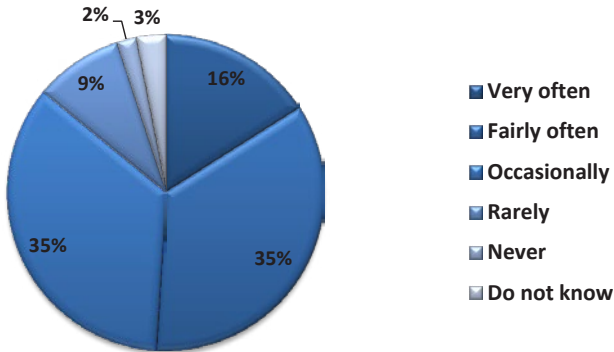
Sue Ratcliffe, patent attorney at Swansea University in the UK, said academics believe the lack of a grace period “stifles innovation” because publishing is so important for them and inevitably takes priority over patenting. The lack of a grace period also brings all the costs of filing a patent forward for universities. A grace period would give universities time to “refine the ideas, do some further research so there is adequate data to support a patent application and see if there is the possibility of commercial interest by third parties,” Ratcliffe said. “It just forces us to [rush] everything far too early on in the process.”

University procedures related to patenting can cause delay, for example. Assuming that a researcher manages to organise the necessary elements for a patent filing, he or she may still have to wait for the patent process to be vetted by the university and fully initiated before he can comfortably disclose his work. As Jade Ross, IP and contracts advisor at Heirot-Watt University, put it:

“We [knowledge transfer offices] always feel the pressure of academics wanting to publish. A lot of times, they have a conference and rush to us saying, ‘I have a conference next month; what can I do now to protect myself?’ I can’t really do much at that point of time. We have an in-house procedure that we need to follow. We have to present a case to the [university] board, which will consider which invention to protect, since we can’t protect everything. A lot of times, because of the short notice and the pressure on the academics to publish in an important conference, we have to do a rushed application in-house, which is not ideal. Ideally we would want academics to plan and delay publication, even after patent filing, to allow us more

'HOW OFTEN DO YOU LOSE PATENTS?'

The graph below shows the number of respondents who feel premature public disclosure has led to an actual loss of patent protection for their organisation.



Country	Very Often	Fairly Often	Occasionally	Rarely	Never	Don't Know
UK	10%	33%	35%	8%	10%	4%
Germany	12.5%	31%	38.5%	6%	6%	6%
Netherlands	8%	46%	46%	0%	0%	0%
Belgium	50%	30%	10%	10%	0%	0%
Switzerland	0%	40%	50%	10%	0%	0%
Denmark	0%	33%	44%	11%	0	12%
Italy	33.3%	11.1%	44.4%	0	0	11.1%

time to find an external partner and commercialisation opportunity, given the limited resources. In a way, the publishing pressure makes the time really tight...”

Ross noted that, 30 to 40 per cent of the time, her team has to abandon patent filings prematurely due to publication pressure prior to suitable commercialisation; and sometimes prior publications weren’t disclosed to them until after the patent application. “This happens more frequently than we would wish,” she said. If a UK patent has been ruled out, going to the US market may only be suitable for certain types of technology, Ross added.

IMPLEMENTING THE GRACE PERIOD

The majority of respondents believe that the introduction of a 12-month European grace period would help ensure that their researchers do not have to choose between publishing or patenting.

For instance, Ingrid Kelly, European patent attorney and technology transfer manager at the University of Vienna, said her office is currently dealing with such a case – a patentable innovation in microelectronics – brought to her attention in late February 2013. “The crux of the invention was exposed in a poster publication last September. Now, we still have to assess the invention in full. But my feeling is that we can forget protecting the invention anywhere in the world, except the US. We may go ahead and take advantage of the grace period in the US because we have the time until next September.” Because Kelly only became aware of the premature publication close to the six-month grace period deadline in Asian countries, it was impossible to make a full assessment of the technological breakthrough and file a patent application on time in Asia.

Kelly concurred with other TTO managers interviewed who point to “a great split” between universities and industry on the benefits of a grace period. “Industry can work with the system as it is. They have the knowledge, system and staff. I don’t see a big problem with industry not having a grace period,” she said. “On the other hand, for universities and research institutions, there is definitely innovation being lost and that can no longer be captured due to a lack of a grace period in Europe.”

“A university of our size has over 7,000 researchers actively producing papers and going to conferences,” said Kelly. “It is simply unrealistic to imagine that you can preview papers before they are disclosed. It is possible in industry because you have a system in place where you publish less, people know what is going on and they also know that their success depends on it. They can live with that system. In academia, it could never function comprehensively.”

The survey results indicate these are not isolated instances. Joachim Aigner, who

advises researchers at Ludwig-Maximilians-University (LMU) in Munich on patents and licenses, estimates there are 30 cases a year of premature disclosures that eliminate the possibility of protecting LMU inventions and benefiting from patent revenues. “I see big problems for scientists at universities. They have such a pressure to publish.” A grace period is “very important” for promoting innovation, Aigner argued, especially for universities, where academics typically “do not see the value in patents at first,” given their urgent need to publish for grants and career advancement.

Highlighting the dilemma, Aigner said LMU professors have initially more benefit to have their articles published in journals, and they do not think about coming first to LMU’s patents and licensing office to report their invention and get help with patenting. “The press release [for the Nature article] is more important [to them]. And then the whole thing is over... There is a novelty-destroying process in publication.” Aigner said a one-year grace period for Europe would level the playing field with the US research community, since scientists typically submit papers for publication six months in advance.

Kirk Haselton, a licensing manager at ipal, an IP management company responsible for patents and licenses at Berlin’s technical universities, estimates that 20 per cent of potential patents ipal could file are lost due to premature disclosure. Though the numbers are not easy to track and the exact loss is impossible to know, the situation is far from inconsequential, he argues. What further complicates the matter is the effect of incremental publication on establishing a patentable invention. Haselton noted that in several different situations, he has seen a series of publications by the same researcher disclose piecemeal all the needed elements of a patentable invention. As a result, ipal was unable to protect the breakthrough. “I’ve seen small things which in and of themselves are not perhaps deemed to be worthy of a patent application.” But over time, he said, two or three papers can reveal a coherent patentable concept.

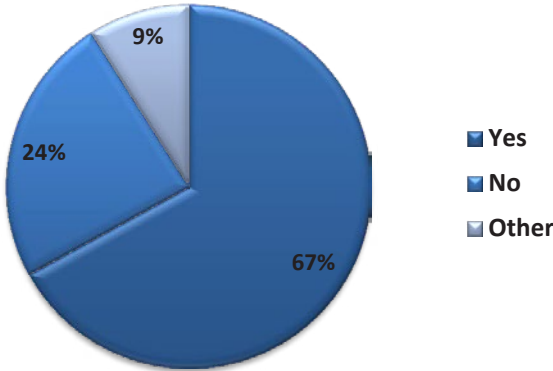
UK and German respondents were the two largest contributors to this survey. According to the 2012 EPO results, Germany was the largest patent-filing country in the EU, with the UK in the top five. While the majority of these patent filings originate from multinational companies and SMEs, HEIs do play a role.

In a 2012 report on research, innovation and technological performance in Germany, the German Expert Commission on Research and Innovation (EFI) tracked the total number of patents submitted by the country’s HEIs to be around 1,700 in 2009. The report notes: “Since 2005, the number of patent applications [in Germany] has largely consolidated...”

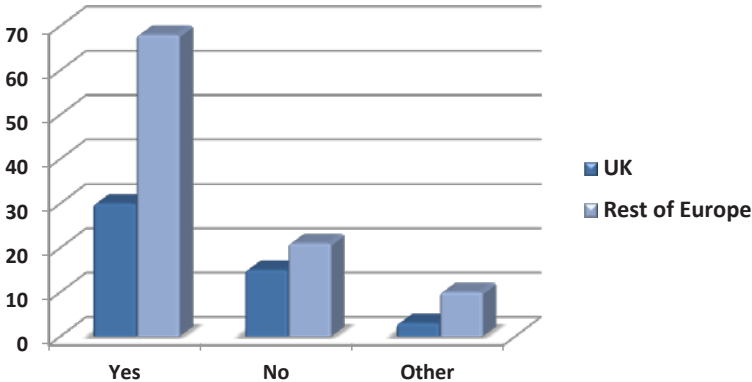
In an interview with Science|Business, Jörg Steinbach, president of the Technical

SHOULD EUROPE HAVE A GRACE PERIOD?

When asked whether they believe that the EU should adopt a grace period that would allow public disclosure of an invention or discovery before a patent is filed, the majority of respondents answered 'yes'. The first graph provides a view of the complete count. The second graph is a simple comparison between the UK and the rest of Europe.



Comparison between the UK and the rest of Europe



University of Berlin, stated that “a grace period for patenting intellectual property would boost technology transfer at German universities. The US and Japan, among many other countries, allow patent applicants a window of six to 12 months to file once they have discussed their invention in public or published an article about it.” Many factors play into a university’s ability to generate patenting and license fees. But proponents of a grace period for Europe argue that it is one of several important elements that promote patenting.

According to the UK patent office, 15,400 patents were filed in the UK by UK nationals in 2011. The Higher Education Funding Council for England (HEFCE) lists the number of patent applications from UK HEIs at 2,256 for 2010. One of the more impressive findings from HEFCE is that UK universities formed one new company per £24 million of research funding during 2010, which exceeds the record of US universities (one new company per £56 million). It also highlights that 268 new businesses were set up based on the world-class research carried out by UK universities, bringing the total number of active spin-off companies to 1262. These companies employed around 18,000 people and had an annual turnover of nearly £2.1 billion.

LOOKING TO THE US

For most European universities, filing in the US is not a standard course of action. Instead, it often serves as a last-ditch measure when premature publication has precluded filing for a European patent. But this does not hold true for all universities. As Haselton at ipal notes, “there are many arguments for us doing a US priority application as opposed to a German or EPO priority application”. The main reason is market size, he says. Second, the US market for patents is more robust than the European market. The third reason would be the grace period. Finally, drafting the patent application directly for the US market reduces examination costs at the USPTO. “Our experience is that the percentage of US application that go through a Patent Cooperation Treaty (PCT) following a German priority application have a significantly higher cost due to extra office actions and related expenses.”

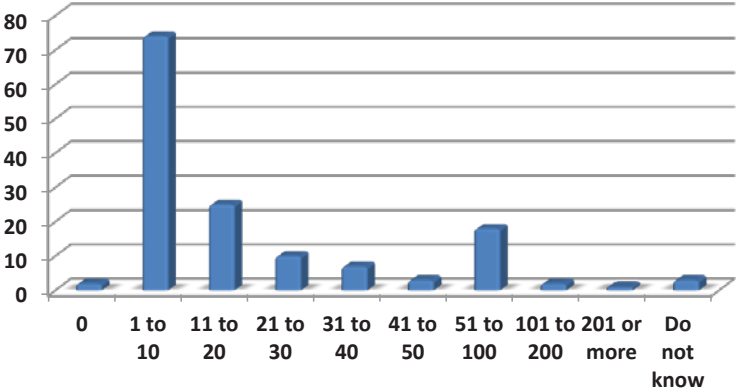
In 2011, the World Intellectual Property Organisation reported the US as the largest user of the PCT system, with 48,596 patent filings. Of those, roughly 6 per cent or close to 3000 were submitted by academic institutions.

THE PROS AND CONS OF THE GRACE PERIOD

This study focused on universities, because their attitudes towards commercialisation have generally been changing in Europe due to budget and policy pressures. But we did sample opinion among some private companies as a way to explore the possibility of further research. Company executives were asked: “Do you think a grace period should be adopted in the European Union, permitting public disclosure of an

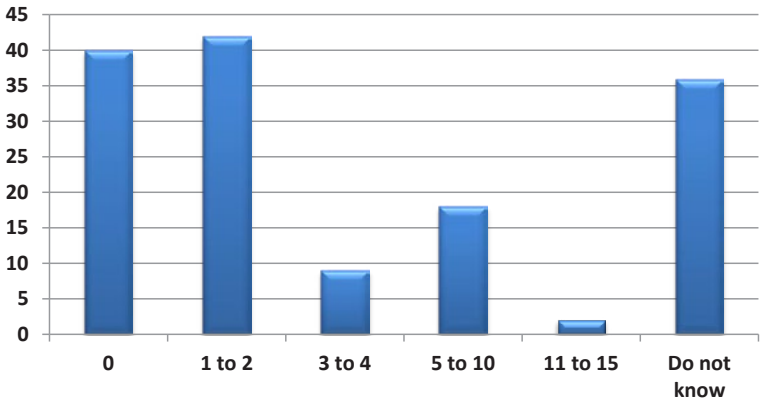
HOW MANY PATENTS DO YOU FILE?

The graph below displays the answers given by the respondents when asked about the number of first patent applications filed by them or their organisation in the past year. This question had a total of 145 respondents.

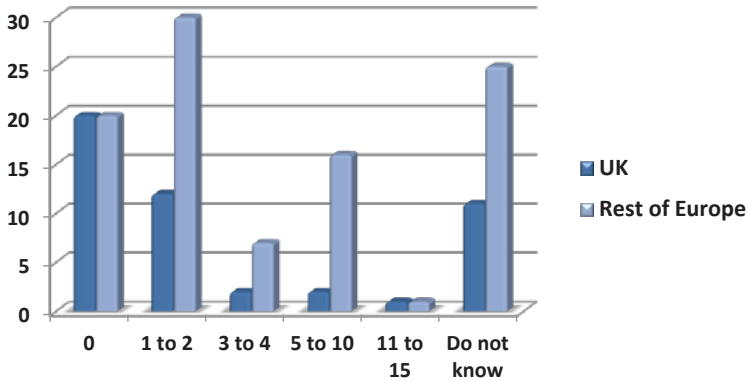


HOW OFTEN DO YOU GO TO THE US TO FILE?

An option for EU researchers wanting a 12-month grace period is to file under the US patent system directly. The next two graphs show how many such direct US filings, for whatever reason, were made by the participating organisations. The first graph provides a view of the complete count. The second graph compares responses between the UK and the rest of Europe.



The following graph compares direct US filings between the UK and the rest of Europe



invention or discovery before a patent is filed?” We found that private companies across the EU are divided on the issue of a European grace period, with slightly more than half of the 23 respondents (56 per cent) in favour.

All those who said no argued that a grace period would create unnecessary uncertainty about patent priority. “There would be an unlevel playing field without worldwide uniformity, or without ‘first to invent’,” one respondent noted.

Of those in favour, nine said they believe a grace period would help to avoid potential loss of economic or social benefits from a patent. Three noted that a grace period “would enhance academic freedom to speak early about discoveries.” One respondent wrote: “it will enable public scientists to fulfil their duties of their taxpayer-funded research to see society benefit by commercial use of their innovations”.

But some academics have mixed views on the matter. Alexandros Papaderos, Head of Patent and Licenses at the Technical University of Munich (TUM), which patents on average 50 to 60 inventions a year, notes that a grace period could be misunderstood and misused by academics who feel free to publish indiscriminately, disclosing the core breakthroughs for inventions publicly before the invention is ready for proof of concept or commercialisation, and jeopardizing the university’s ability to ever protect and commercialise the IP. “When you file a patent application, it will be kept secret for 18 months by the national or European Patent Office – this gives us extra time to research the market and prepare the commercialisation,” said Papaderos. With a grace period, by contrast, “the whole world will know about it”.

Still, the advantages of a grace period outweigh the disadvantages, Papaderos argued. Far too often, scientists call TUM Patents and Licenses one week before

they plan to speak at a conference or publish a scientific article, asking that a patent application be filed. “The basic scenario is always the same, and it makes no difference if you are in life sciences or engineering,” he said. The patent office then has to rush to hire a patent attorney to try to file a provisional application. “It is a lot of trouble for us since we are a medium-sized TTO. We are not like a fully equipped patent department of a company and we have to serve a very broad spectrum of science fields.”

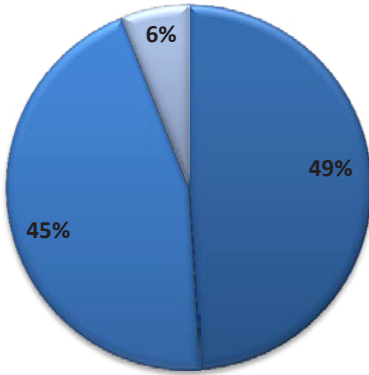
In one case Papaderos received a published press release about a new technology developed in the chemistry department for producing biofuels from algae – including technical details. “This was a case where the professor actually said, ‘Sorry, I forgot to file a patent application.’” Having a grace period would not only capture lost opportunities to protect the university’s IP, as in this case, but would allow TUM Patents and Licenses to examine each breakthrough carefully and evaluate the opportunities and options. But if Europe does adopt a grace period, universities will need to educate their scientists about how to use it, Papaderos said.

In the absence of a grace period, European universities have taken several measures to cope with the problem. The following table shows the preferred methods of European TTOs for dealing with the issue of premature public disclosure.

How does your organisation handle the issue of premature public disclosure?	# of responses to each option provided
Formal training/education to pre-empt the problem	101
Disseminating information about it to all staff (brochures, staff memoranda, etc.	68
Requiring some form of internal clearance of public disclosures on inventions	26
Written policies for managing the issue as it arises	58
Filing a US priority patent application	34
Ad hoc management of the issue as it arises	95
Nothing	4
Other	8

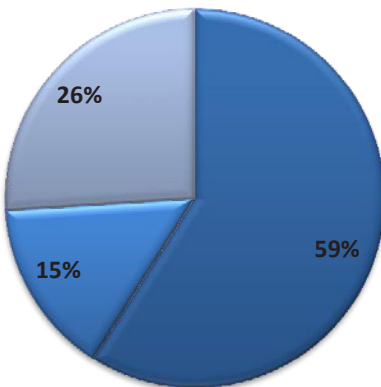
The first pie chart shows the main reasons for wanting a grace period and the second chart shows the arguments against one.

Why I am in favour of a grace period



- Because it enhances academic freedom to speak early about discoveries
- To avoid potential economic loss and social benefits from a patent
- Other

Why I am against a grace period



- Because it would create unnecessary uncertainty about patent priority
- Because it would add to patent or litigation costs
- Other



SUMMARY

European technology transfer professionals favour a grace period for inventors by 2-to-1, our research suggests. Further, individual experts provide strong anecdotal evidence to highlight the potential economic loss to European universities resulting from an environment that forces academics to choose between patenting and academic advancement. On the other hand, support for a grace period isn't universal, particularly, it appears from our preliminary soundings, in the corporate world.

Still, we believe European policymakers should consider the arguments of the universities – particularly as they put rising pressure on them to meet economic goals. We urge further research on the economic impact. It should, however, be possible to find an acceptable balance between a need to avoid legal uncertainty and a need to mitigate harsh realities of absolute novelty. One answer might be an EU grace period of 6 months limited to an applicant's own disclosures, perhaps even requiring formal identification of such a disclosure at the time of filing the patent application.

ANNEX 1: THE CURRENT EUROPEAN GRACE PERIOD

The current grace period in Europe is set forth in Article 55 of the EPC as follows:

Article 55

Non-prejudicial disclosures

(1) For the application of Article 54 a disclosure of the invention shall not be taken into consideration if it occurred no earlier than six months preceding the filing of the European patent application and if it was due to, or in consequence of:

- (a) An evident abuse in relation to the applicant or his legal predecessor, or
 - (b) The fact that the applicant or his legal predecessor has displayed the invention at an official, or officially recognised, international exhibition falling within the terms of the Convention on international exhibitions signed at Paris on 22 November 1928 and last revised on 30 November 1972.
- (2) In the case of paragraph 1(b), paragraph 1 shall apply only if the applicant states, when filing the European patent application, that the invention has been so displayed and files a supporting certificate within the period and under the conditions laid down in the Implementing Regulations.

ANNEX 2: THE US GRACE PERIOD PRE- AND POST-AMERICA INVENTS ACT (AIA)

PRE-AIA GRACE PERIOD

The grace period for US patents not subject to the AIA appears in 35 USC 102(b) as follows:

35 U.S.C. 102 Conditions for patentability; novelty and loss of right to patent.

A person shall be entitled to a patent unless —

...

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

...

AIA GRACE PERIOD

The AIA grace period in the US appears in 35 USC 102(b) as follows:

(b) EXCEPTIONS.—

(1) DISCLOSURES MADE 1 YEAR OR LESS BEFORE THE EFFECTIVE FILING DATE OF THE CLAIMED INVENTION.—A disclosure made 1 year or less before the effective filing date of a claimed invention shall not be prior art to the claimed invention under subsection (a)(1) if—

(A) the disclosure was made by the inventor or joint inventor or by another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor; or

(B) the subject matter disclosed had, before such disclosure, been publicly disclosed by the inventor or a joint inventor or another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor.

(2) DISCLOSURES APPEARING IN APPLICATIONS AND PATENTS.—A disclosure shall not be prior art to a claimed invention under subsection (a)(2) if—

(A) the subject matter disclosed was obtained directly or indirectly from the inventor or a joint inventor;

(B) the subject matter disclosed had, before such subject matter was effectively filed under subsection (a)(2), been publicly disclosed by the inventor or a joint inventor or another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor; or

(C) the subject matter disclosed and the claimed invention, not later than the effective filing date of the claimed invention, were owned by the same person or subject to an obligation of assignment to the same person.

(c) COMMON OWNERSHIP UNDER JOINT RESEARCH AGREEMENTS.—Subject matter disclosed and a claimed invention shall be deemed to have been owned by the same person or subject to an obligation of assignment to the same person in applying the provisions of subsection (b)(2)(C) if—

(1) the subject matter disclosed was developed and the claimed invention was made by, or on behalf of, 1 or more parties to a joint research agreement that was in effect on or before the effective filing date of the claimed invention;

(2) the claimed invention was made as a result of activities undertaken within the scope of the joint research agreement; and

(3) the application for patent for the claimed invention discloses or is amended to disclose the names of the parties to the joint research agreement.

(d) PATENTS AND PUBLISHED APPLICATIONS EFFECTIVE AS PRIOR ART.—For purposes of determining whether a patent or application for patent is prior art to a claimed invention under subsection (a)(2), such patent or application shall be considered to have been effectively filed, with respect to any subject matter described in the patent or application—

(1) if paragraph (2) does not apply, as of the actual filing date of the patent or the application for patent; or

(2) if the patent or application for patent is entitled to claim a right of priority under section 119, 365(a), or 365(b) or to claim the benefit of an earlier filing date under section 120, 121, or 365(c), based upon 1 or more prior filed applications for patent, as of the filing date of the earliest such application that describes the subject matter.

ANNEX 3: INTERNATIONAL GRACE PERIODS

Country	Grace period	Term	Notes ¹
ARGENTINA	Yes ²	12 months	12-month grace period from date of first disclosure
AUSTRALIA	Yes	12 months	12-month grace period from date of first disclosure
BOLIVIA	Yes	12 months	12-month grace period from the date of first disclosure to file (1) an application in Bolivia, or (2) the application to which the Bolivia application will claim priority
BRAZIL	Yes	12 months	12-month grace period from date of first disclosure
CANADA	Yes	12 months	12-month grace period from date of first disclosure
CHILE	Yes	12 months	12-month grace period from date of first disclosure. The disclosure must be declared at the time of filing the Chilean application
CHINA	Minimal	6 months	Art. 24 of the Chinese Patent Law stipulates within six months before the date of filing, one of the three events does not lose its novelty: 1) where it was first exhibited at an international exhibition sponsored or recognised by the Chinese Government; 2) where it was first made public at a prescribed academic or technological meeting; 3) where it was disclosed by any person without the consent of the applicant

1 In most cases, a direct national filing (or PCT, designating the country) is required within the grace period term. It is not sufficient, for example, to file in the U.S. within the grace period term, and then file in the country of interest.

2 “Yes” indicates that the grace period at least excuses the inventor’s own pre-filing disclosure. If not, “Minimal” appears.

Country	Grace period	Term	Notes ¹
COLOMBIA	Yes	12 months	12-month grace period from the date of first disclosure to file (1) an application in Colombia, or (2) the application to which the Colombian application will claim priority
COSTA RICA	Yes	12 months	12-month grace period from date of first disclosure
ECUADOR	Yes	12 months	12-month grace period from date of first disclosure by the applicant
EGYPT	Minimal	6 months	Disclosure shall not include displaying the invention in national or international exhibitions within the six months before the date on which the application was filed
EUROPE (EPC)	Minimal	6 months	There is no grace period as such. However, disclosure at an International exhibition, or disclosure as a result of an evident abuse in relation to the applicant will not be prior art if the application is filed within 6 months of that disclosure
GUATEMALA	Yes	12 months	12-month grace period from date of first disclosure
INDIA	Minimal	12 months	An invention claimed in a complete specification shall not be deemed to have been anticipated by reason only: (a) the display of the invention with the consent of the true and first inventor or a person deriving title from him at an industrial or other exhibition to which the provisions of this section have been extended by the Central Government by notification in the Official Gazette, or the use thereof with his consent for the purpose of such an exhibition in the place where it is held; or

Country	Grace period	Term	Notes ¹
			<p>(b) the publication of any description of the invention in consequence of the display or use of the invention at any such exhibition as aforesaid; or</p> <p>(c) the use of the invention, after it has been displayed or used at any such exhibition as aforesaid and during the period of the exhibition, by any person without the consent of the true and first inventor or a person deriving title from him; or</p> <p>(d) the description of the invention in a paper read by the true and first inventor before a learned society or published with his consent in the transactions of such a society,</p> <p>if the application for the patent is made by the true and first inventor or a person deriving title from him not later than twelve months after the opening of the exhibition or the reading or publication of the paper, as the case may be.</p>
INDONESIA	Minimal	6 or 12 months	<p>Six months for use by the inventor for experiments for research and development only, or display at an officially recognised national or international exhibition</p> <p>12 months for publication of the invention by a third party in violation of an obligation of confidentiality</p>
ISRAEL	Minimal	6 months	<p>Section 6 of the Law does make marginal and exceptional provision of a six-month grace period where permission was sought from, and granted by the Registrar to exhibit the invention at an Exhibition before filing the application.</p>

Country	Grace period	Term	Notes ¹
JAPAN	Minimal	6 months	<p>Japan's grace period was expanded in 2012 to include essentially any form of disclosure by the inventor, including sales. There is a six-month grace period available as the "exceptions to lack of the novelty of invention". The exceptions to lack of the novelty of invention prescribed in Article 30 of Japanese patent law are applicable when disclosure is made against the will of the inventor or when the person having the right to obtain a patent:</p> <ol style="list-style-type: none"> 1) conducted an experiment only with the aim of verifying technical effects of the invention; 2) made a presentation in a printed publication; 3) made a presentation through telecommunication lines; 4) made a presentation in writing (e.g. poster) at a study meeting held by a scientific body designated by the Commissioner of the Japan Patent Office (Note: Any non-Japanese scientific bodies have not been designated by the JPO so far); or 5) exhibited the invention at some exhibition and filed a PCT application designating Japan or a direct Japanese application within six months of the public disclosure.
JORDAN	Yes	12 months	12-month grace period from date of first disclosure
MALAYSIA	Yes	12 months	12-month grace period from date of first disclosure

Country	Grace period	Term	Notes ¹
MEXICO	Yes	12 months	An invention previously disclosed can be filed as long as the application is filed in Mexico within a term of 12 months counted from the disclosure date, only if such disclosure was done by any means except the publication of the invention by any Patent Office around the World as application
NEW ZEALAND	Minimal	6 months	There are some very specific savings to anticipation – 6 months for 1) disclosure at an exhibition authorized and advertised by the Commissioner of Patents 2) unauthorized use following the exhibition 3) disclosure read by the inventor before a learned society 4) disclosure to a Government Department. There is also a 12-month grace period provision for public use of the invention in New Zealand for the purpose of reasonable trial and if it is reasonably necessary having regard to the invention that the use should be effected in public.
PAKISTAN	Minimal	12 months	A patentable invention in respect of goods will not constitute “state of the art” if an article is exhibited at an official or officially recognised international exhibition within 12 months preceding the date of filing of an application for grant of patent
PANAMA	Yes	12 months	12-month grace period from date of first disclosure

Country	Grace period	Term	Notes ¹
PERU	Yes	12 months	12-month grace period from the date of first disclosure to file (1) an application in Peru, or (2) the application to which the Peru application will claim priority
PHILIPPINES	Yes	12 months	The disclosure of information contained in the application during the 12 months preceding the filing date or the priority date of the application shall not prejudice the applicant on the ground of lack of novelty if such disclosure was made by: the inventor; a patent office and the information was contained (a) in another application filed by the inventor and should not have been disclosed by the office, or (b) in an application filed without the knowledge or consent of the inventor by a third party which obtained the information directly or indirectly from the inventor; or (c) a third party which obtained the information directly or indirectly from the inventor.
RUSSIA	Yes	6 months	6-month grace period counting back from the date of filing an application with the Russian PTO or from the international filing date for PCT applications
SERBIA	Yes	6 months	6-month grace period from date of first disclosure, provided that disclosure information is provided at the time of filing

Country	Grace period	Term	Notes ¹
SINGAPORE	Yes	12 months	A disclosure shall be disregarded if occurring later than the beginning of the period of 12 months immediately preceding the date of filing the application, if the disclosure was due, or made in consequence of the inventor describing the invention in a paper read by him or another person with his consent or on his behalf before any learned society or published with his consent in the transactions of any learned society.
SOUTH AFRICA	Minimal	Not Provided	There are two exceptions to the absolute novelty requirement: 1) if disclosure occurred without the knowledge or consent of the applicant; or 2) as a result of the invention being worked in South Africa by way of reasonable technical trial or experiment by the applicant, or his predecessor in title.
SOUTH KOREA	Yes	12 months	To benefit from the grace period after intentionally publishing the invention, the applicant upon filing a subsequent patent application must specifically invoke the grace period and must provide evidence relevant to the publication. If the disclosure was involuntary, the applicant must provide proof of the circumstances.

Country	Grace period	Term	Notes ¹
TAIWAN	Minimal	6 months	The ROC patent system adopts the “Absolute Novelty Principle” and a public disclosure of an invention made prior to the ROC filing date or a properly claimed priority date may destroy the novelty of an invention. However, if a prior public disclosure is made 1) for research or experimental purposes, or 2) in a manner of exhibition at a trade show sponsored or recognised by the ROC government or 3) through an involuntary disclosure a 6-month grace period can be applied (i.e., if a patent application is filed within 6 months from the date of public disclosure, the novelty of the invention will not be destroyed)
THAILAND	Minimal	12 months	A disclosure of the subject matter by the inventor including display of the inventor’s work at an international exhibition or an official exhibition and such disclosure was done within 12 months before the filing date shall not be deemed to be a novelty-destroying event
TURKEY	Yes	12 months	Grace period is 12 months preceding the date of filing or, where priority is claimed, the date of priority of the application
UKRAINE	Yes	12 months	12-month grace period from date of first disclosure

Country	Grace period	Term	Notes ¹
UNITED STATES	Yes	12 months	Pre-AIA allows removal of third party disclosures by showing of earlier invention; post-AIA requires showing of earlier disclosure of “same subject matter” as third party disclosure
URUGUAY	Yes	12 months	12 months before the filing date in Uruguay or the invoked priority, if any, of actions made by the inventor, his/her heirs or third parties based on information obtained from the inventor
VIETNAM	Yes	6 months	The grace period is applied to a scientific report and a Vietnamese national exhibition/ an official or officially recognised international exhibition. According to the Vietnamese patent law, an invention shall not be deemed to have been available to the public, within the period of 6 months preceding the filing of an application for the invention, by the reason of the following facts: 1) the invention has been published in the form of a scientific report; or 2) the invention has appeared in a Vietnamese national exhibition or an official or officially recognised international exhibition; or 3) the invention was published by another person without permission.



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