

July 2002

INTERNATIONAL TRADE

Federal Action Needed to Help Small Businesses Address Foreign Patent Challenges





INTERNATIONAL TRADE

Federal Action Needed to Help Small Businesses Address Foreign Patent Challenges

Highlights of [GAO-02-789](#), a report to the Ranking Minority Member of the Senate Committee on Small Business and Entrepreneurship and the Chairman of the House Committee on Small Business.

Why GAO Did This Study

Small businesses are important to the U.S. economy for their roles in technological development and job creation. To fully protect and profit from their innovations, small businesses may need to obtain patents in other countries. Congressional requesters asked GAO to identify whether small businesses encounter any impediments in seeking patents abroad and to determine whether any federal actions could help small businesses overcome those impediments. To answer these questions, GAO convened an expert panel of U.S. patent attorneys and surveyed a limited number of small businesses.

What GAO Recommends

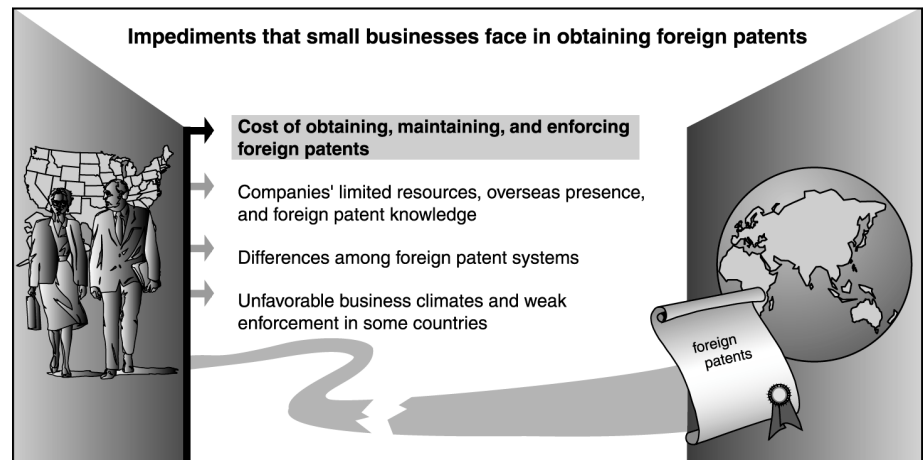
GAO recommends that the U.S. Patent and Trademark Office obtain input from small businesses and other interested parties to assess the advantages and disadvantages of various patent harmonization options. GAO also recommends that the Small Business Administration make information about key aspects of foreign patent laws, procedures, and costs readily available to small businesses.

The U.S. Patent and Trademark Office and the Small Business Administration agreed with our recommendations.

What GAO Found

Foreign patent costs are the most significant impediment that small businesses face in trying to protect their inventions abroad, according to the small businesses and patent attorneys GAO contacted. The minimum cost to a small business to obtain and maintain a relatively simple patent in the United States for 20 years could be about \$10,000, based on a scenario that GAO developed. However, extending this patent to nine other countries, which could be a typical small business foreign patent strategy, could cost between \$160,000 and \$330,000, according to GAO's research. Other impediments that the businesses and attorneys identified included companies' limited resources and limited foreign patent knowledge; differences among foreign patent systems, which increase costs and make the process more complex; and the existence of challenging business climates and weak patent enforcement in certain countries. Large businesses also face some of these impediments, but have more resources and expertise to address them than small businesses do.

Over 70 percent of both the small businesses and the patent attorneys that GAO surveyed believed that federal efforts to promote harmonization (i.e., reduce differences) among U.S. and foreign patent systems and to reduce the high cost of foreign patents would be the best way to help small businesses. Member states of the World Intellectual Property Organization, including the United States, have taken some steps to harmonize their patent systems and are currently negotiating to reduce the more substantive differences that remain among them. A majority of small businesses also thought that federal financial assistance to help defray the high costs of foreign patents would be useful, but many on the patent attorney panel did not support this step. Instead, a majority of the patent attorneys believed that informing and educating small businesses about foreign patents would be worthwhile.



Contents

Letter		1
	Results in Brief	2
	Background	4
	Small Businesses Encounter Cost and Other Impediments When Seeking Foreign Patents	6
	Impediments Negatively Affect Small Businesses' Foreign Patent Decisions	21
	Several Federal Actions Could Help Small Businesses Overcome Impediments	25
	Conclusions	32
	Recommendation for Executive Action	33
	Agency Comments and Our Response	34

Appendixes

Appendix I: Objectives, Scope, and Methodology	36
The Expert Panel	36
The Small Business Survey	39
Appendix II: Information about the Small Business Survey Population	45
Size of Businesses Surveyed	45
Industries of Businesses Surveyed	46
Locations of Businesses Surveyed	47
Patent Behavior of Businesses Surveyed	48
Appendix III: Members of GAO's Patent Attorney Panel	50
Appendix IV: Results of the Patent Attorney Panel Surveys	53
Phase I	53
Phase II	53
Phase III	79
Appendix V: Results of the Small Business Survey	82
Appendix VI: Processes and Costs Involved in Obtaining Foreign Patent Protection: A Hypothetical Scenario	88
Estimated Cost of U.S. Patent	89
Filing for a Foreign Patent	90
Obtaining a Foreign Patent Using PCT	92
Maintaining a Foreign Patent	99
U.S. Attorney and Foreign Representative Fees	101
Total Scenario Costs	102
Scope and Methodology	103

Appendix VII: Comments from the U.S. Patent and Trademark Office	106
GAO Comment	107
Appendix VIII: Comments from the Small Business Administration	108
GAO Comment	110
Appendix IX: GAO Contacts and Staff Acknowledgments	111
GAO Contacts	111
Staff Acknowledgments	111

Glossary	112
-----------------	-----

Tables	
Table 1: Minimum Estimated Costs for a Small Business to Obtain and Maintain U.S. and Foreign Patent Protection for a Single Invention	12
Table 2: Statistics on the Number of Small Businesses Screened and Selected for GAO’s Survey	42
Table 3: Foreign Patent Experience of the Small Businesses That GAO Surveyed	43
Table 4: Descriptive Statistics on Impediments That Businesses Face in Seeking Foreign Patent Protection	55
Table 5: Descriptive Statistics on Suggestions for Small Businesses to Consider When Seeking, Obtaining, and Maintaining Foreign Patent Protection	67
Table 6: Descriptive Statistics on Public Assistance Options to Help Small Businesses Overcome Impediments to Seeking, Obtaining, and Maintaining Foreign Patents	74
Table 7: Estimated Costs to Obtain and Maintain U.S. Patent for 20 Years	90
Table 8: Estimated International Stage Patent Costs	97
Table 9: Estimated National Stage Patent Costs	99
Table 10: Estimated Costs Involved in Maintaining a Foreign Patent in Nine Countries for 20 Years	101
Table 11: Estimated U.S. Attorney and Foreign Representative Fees	102
Table 12: Estimated Total Foreign Patent Costs	103

Figures	
Figure 1: Small Businesses’ and Patent Attorneys’ Views on Types of Foreign Patent Impediments That Small Businesses Face	8

Figure 2: Small Businesses' and Patent Attorneys' Views on the Stages of Foreign Patent Costs as Impediments to Foreign Patent Protection	9
Figure 3: Small Businesses' and Patent Attorneys' Views on Company Characteristics as Impediments to Foreign Patent Protection	14
Figure 4: Small Businesses' and Patent Attorneys' Views on Differences among Foreign Patent Systems as Impediments to Foreign Patent Protection	17
Figure 5: Small Businesses' and Patent Attorneys' Views on Individual Country Characteristics as Impediments to Foreign Patent Protection	20
Figure 6: Patent Attorneys' Views on Small Businesses' Level of Foreign Patent Protection	23
Figure 7: Patent Attorneys' Views on the Differences in Impediments That Large and Small Businesses Face	24
Figure 8: Small Businesses' and Patent Attorneys' Views about Possible Federal Actions to Overcome Foreign Patent Impediments	26
Figure 9: Patent Attorneys' Views on the Usefulness and Feasibility of Federal Financial Assistance for Reducing Foreign Patent Costs	30
Figure 10: Patent Attorneys' Views on Usefulness of Information That Federal Government Could Provide to Small Businesses	32
Figure 11: Number of Employees in Small Businesses That GAO Surveyed	45
Figure 12: Industries of Small Businesses That GAO Surveyed	46
Figure 13: Locations of Small Businesses That GAO Surveyed	47
Figure 14: Number of U.S. and Foreign Patents Held and Pending among the Small Businesses That GAO Surveyed	48
Figure 15: Foreign Countries or Locations in Which Small Businesses That GAO Surveyed Held Patents	49
Figure 16: Patent Attorney Responses to Questions 11 and 12 of Phase II	63
Figure 17: Patent Attorney Responses to Questions 13, 14, and 15 of Phase II	65
Figure 18: Patent Attorney Responses to Questions 17 and 18 of Phase II	71
Figure 19: Patent Attorney Responses to the Four Questions in Phase III	80

Figure 20: The International and National Stages of the PCT
Process

94

Abbreviations

EPO	European Patent Office
IP	intellectual property
PCT	Patent Cooperation Treaty
SBA	Small Business Administration
USPTO	U.S. Patent and Trademark Office
WIPO	World Intellectual Property Organization



United States General Accounting Office
Washington, D.C. 20548

July 17, 2002

The Honorable Christopher S. Bond
Ranking Minority Member
Committee on Small Business
and Entrepreneurship
United States Senate

The Honorable Donald A. Manzullo
Chairman, Committee on Small Business
House of Representatives

Small and start-up businesses¹ are principal sources of innovation and therefore play an important role in technological development. These firms are also vital to U.S. economic growth—statistics show that small businesses created more than 5.5 million new U.S. jobs during the 1990s.² In order to prosper, small businesses, particularly those in high-technology industries, must be able to protect and profit from the innovations that flow from their research and development expenditures. In the current global economy, protecting innovations in the United States and abroad is an increasingly important component of small businesses' ability to develop markets in other countries. One way to globally protect innovations is to obtain U.S. and foreign patents. While small businesses held about 11 percent of the U.S. patents granted to U.S. entities in 2000, available research indicates that small businesses are less likely than large businesses to seek patents overseas, even when their inventions are of similar value.³

Concerned that some small businesses, particularly high-technology firms, were not obtaining patent protection overseas and thus were losing potential sales in foreign markets, you asked us to analyze (1) whether

¹Under 13 C.F.R. part 121, the Small Business Administration (SBA) established various size standards, based on economic activity or industry, for determining what is a small business for purposes of eligibility for its programs. Based on the SBA standards, we defined a small business for purposes of conducting our work as having 500 or fewer employees.

²See U.S. Bureau of the Census, *Statistics of U.S. Businesses* (Washington, D.C.: n.d.), available at <http://www.census.gov/epcd/www/smallbus.html> (table 2d).

³Mogee Research and Analysis Associates, *Foreign Patenting Behavior of Small and Large Firms*, prepared under contract for the Office of Advocacy, U.S. Small Business Administration (Reston, Virginia: Mar. 5, 1996). An update to this study is forthcoming.

small businesses face impediments in obtaining foreign patent protection; (2) what impact any impediments have on their foreign patent decisions; and (3) whether any federal actions could help small businesses overcome the impediments they may face in obtaining foreign patents.

To meet our objectives, we convened a Web-based panel of 39 U.S. patent attorneys with expertise in obtaining foreign patents for both small and large businesses. In the panel's three phases, the patent attorneys identified and assessed a range of foreign patent impediments and possible federal actions to address them. Based on the attorneys' input, we then developed a questionnaire that we administered to a random sample of small businesses that had obtained or considered obtaining foreign patents in the last 5 years. The 38 businesses that participated in our survey operated in a cross-section of industries; more than 80 percent of them held foreign patents. Although we initially randomly selected the sample of small businesses, the number we ultimately consulted was limited because information was not available for a substantial number of businesses. Therefore, the information in this report does not represent the overall set of small businesses that seek foreign patent protection. (App. I provides further details about our methodology and its limitations. App. II contains information about the businesses we surveyed, and app. III lists the members of the patent attorney panel.)

Results in Brief

The cost of obtaining, maintaining, and enforcing foreign patents is the most significant foreign patent impediment that small businesses encounter, according to the small businesses and patent attorneys that we consulted. Patenting abroad is a costly endeavor for several reasons. For example, (1) companies typically seek patents in several other countries simultaneously and incur costs in each location; (2) some foreign patent office fees are substantially higher than corresponding U.S. Patent and Trademark Office fees; and (3) foreign patent laws and requirements are complex and difficult to understand, causing companies to incur substantial U.S. and foreign legal fees. As a result, foreign patent protection is more expensive to acquire than U.S. patent protection. We developed a hypothetical scenario to estimate patent costs and determined that a small business could pay about \$10,000 to obtain and maintain a U.S. patent on a single invention for 20 years. However, it could pay at least \$160,000 to \$360,000 to obtain and similarly maintain patents in nine other countries for the same invention (this amount of foreign patent coverage could be considered typical for a small business). Small businesses would incur such costs for each patent they seek to file outside of the United States.

Other factors impede small businesses' efforts to patent abroad as well, according to the groups we surveyed. For example, the businesses and patent attorneys said that small businesses tend to have limited resources to pay foreign patent costs, a limited overseas presence to enforce their patents, and limited knowledge about foreign patents. In addition, differences among other countries' patent laws, standards, and procedures heighten the level of complexity associated with obtaining foreign patents. Finally, unfavorable business climates and the lack of enforcement in some countries also impede small businesses, according to our survey results.

The businesses we surveyed said that the impediments they encounter have discouraged or prevented them from obtaining as much foreign patent protection as they would like to have. A majority of the patent attorneys said that most small businesses hold fewer foreign patents than they need, primarily because the impediments are too difficult for them to overcome. Most of the attorneys believed that large and small businesses generally encounter many of the same impediments to acquiring foreign patents, but the impediments have a more negative effect on small businesses. Large businesses are better equipped to deal with foreign patent impediments, the attorneys said, because they have more financial resources and foreign patent expertise and are better able to enforce their patents abroad.

The small businesses and patent attorneys thought that certain federal actions could help small businesses overcome the impediments they face in seeking foreign patent protection. More than 70 percent of the survey respondents in both groups supported federal efforts to promote harmonization among the world's patent laws and systems and to seek patent cost reduction. Patent law harmonization efforts have been ongoing in the World Intellectual Property Organization for at least 20 years, and while some success has been achieved, many differences among member countries' patent laws remain. Harmonization could provide many advantages, such as agreement on the types of innovations that can be patented, acceptance among national patent offices of one another's work, and substantially reduced costs. However, achieving harmonization could require significant changes to U.S. patent laws. In addition to supporting harmonization efforts, nearly 70 percent of the businesses thought that federal financial assistance to help defray the costs of foreign patents would be helpful, but less than 50 percent of the patent attorneys held this view. Most of the patent attorneys regarded federal financial assistance as an indirect solution to the broader problem of a lack of uniformity among global patent systems. Conversely, nearly 70 percent of the attorneys, but only about 40 percent of the businesses, thought that making information

about foreign patents available to small businesses, particularly those that are just beginning to consider foreign patents, would be useful. In this report, we recommend that the government assess the advantages and disadvantages to U.S. businesses of various options for further patent harmonization. However, given the long-term nature of these efforts, we also recommend that the government make information about key aspects of obtaining foreign patent protection available to small businesses to assist their efforts.

Commenting on a draft of this report, the U.S. Patent and Trademark Office and the Small Business Administration indicated that they agreed with our recommendations but lacked the expertise to independently develop information about foreign patent protection. We agreed and modified the recommendation to direct the agencies to collect and make available existing information about foreign patents.

Background

A patent is the grant of a property right that a national government or an international intergovernmental authority issues for an invention. Patents cover inventions of new products as well as new processes to make or use new or existing products. While patent rights vary by country, a patent typically gives an inventor the right to exclude others from commercially making, using, offering to sell, or importing the invention in the country that granted the patent during the patent term, usually a 20-year period from the application date. Any violation of that right is considered a patent infringement. Patent owners that wish to address the infringement of, or to “enforce,” their patent rights must initiate a legal action in the country or countries where the infringement occurred. (Our glossary defines the patent-related terms we use in this report.)

U.S. companies and inventors that seek patent protection in the United States file patent applications with the U.S. Patent and Trademark Office (USPTO). They are typically represented by a patent attorney, who drafts their patent application and responds to USPTO questions about the application. Before granting a patent, USPTO will search for relevant “prior art” (all patent and nonpatent literature that helps determine whether a new patent will be granted) and examine applications to, among other things, determine whether the claimed invention is “new and nonobvious.” USPTO provides information about the U.S. patent system to independent inventors that are considering whether to obtain a U.S. patent, but it provides little information about foreign patent systems.

U.S. companies and inventors that seek foreign patent protection may file either (1) separate patent applications with each national or regional patent office where they desire patent protection, or (2) an international patent application under the Patent Cooperation Treaty⁴ (PCT) that the World Intellectual Property Organization (WIPO) administers.⁵ While the PCT process does not culminate in a “world patent,” because such a patent does not exist, it does enable applicants to indicate the countries where they might like to seek patent protection and to undergo a single prior art search and single examination before deciding whether and in which countries they wish to obtain patents. In order to preserve their rights to the invention they seek to patent, U.S. companies and inventors must file all foreign patent applications related to the invention, including PCT applications, within 1 year from the date on which their U.S. application was filed. If they do not file with this 1-year period, companies and inventors lose certain rights that an international treaty provides, which may in turn affect their ability to obtain patent protection abroad.⁶ Foreign patent applications must conform to the patent laws and requirements in the countries where protection is sought.

U.S. companies and inventors that seek to patent abroad incur costs to apply for, obtain, maintain, and enforce their patents. For example,

⁴The PCT, adhered to by 115 countries, is an international system that facilitates the filing of multiple patent applications and allows nationals or residents of PCT member countries to simultaneously seek patent protection in other PCT member countries. PCT applications are generally filed with the applicant's national patent office. The International Searching Authority chosen by the applicant (a national patent office or intergovernmental organization) conducts a prior art search. If the applicant desires, an International Preliminary Examination Authority chosen by the applicant (also a national patent office or intergovernmental authority) examines the application. Applicants that choose this route must still file patent applications in the countries where they wish to hold patents, but the treaty allows them to delay filing these applications for up to 30 months from the applicant's original filing date.

⁵WIPO was established in 1970 and is one of 14 specialized agencies in the United Nations system. Based in Geneva, Switzerland, and composed of 171 member states, WIPO promotes intellectual property protection, facilitates adoption of intellectual property treaties, and plays an important role in the global administration of intellectual property regulations.

⁶Under the 1883 Convention for the Protection of Industrial Property (known as the Paris Convention), as amended, 163 countries give limited recognition to each other's patent application filing dates. Under the convention, for 1 year after the date of filing of a U.S. patent application, basically the same application may be filed as a foreign counterpart application in any country that is a convention member. Applicants' rights are similarly protected if they file a PCT application within 1 year of their original filing date.

national patent offices typically charge fees when patent applications are filed, as well as when they search for prior art, examine applications, and grant patents. In addition, companies and inventors may incur costs to have patent applications translated into other languages. National patent offices also charge fees to maintain or keep a patent active after it has been granted. Whereas most USPTO fees are reduced by half for small entities (defined as a small business, independent inventor, or not-for-profit entity), most foreign patent offices do not offer similar fee reductions. In addition to varying national patent office charges, companies and inventors must pay for the services of U.S. and foreign patent attorneys or agents throughout the process, particularly if they take any enforcement action related to their patents.

Small Businesses Encounter Cost and Other Impediments When Seeking Foreign Patents

Small businesses face many obstacles in obtaining foreign patents, but cost is the greatest impediment, according to the small businesses and the panel of patent attorneys we surveyed. Certain characteristics of small businesses themselves are also great impediments, the survey respondents said. These latter include the amount of resources that small businesses can allocate for foreign patent costs and the tendency for these businesses to have a limited overseas presence. In addition, the patent attorneys believe that small businesses lack sufficient knowledge about foreign patents. This causes them to make inappropriate decisions about obtaining and managing their patents. Both groups believe that differences among foreign patent systems, such as variations in the extent and type of protection that other countries' patent systems provide, create challenges. Finally, certain aspects of individual countries, predominantly a country's market or business climate and the extent to which it enforces its patents, can present significant impediments for small businesses. (App. IV contains the results of the patent attorney panel. App. V contains the small business survey results.)

Cost Is the Primary Impediment for Small Businesses Seeking Foreign Patent Protection

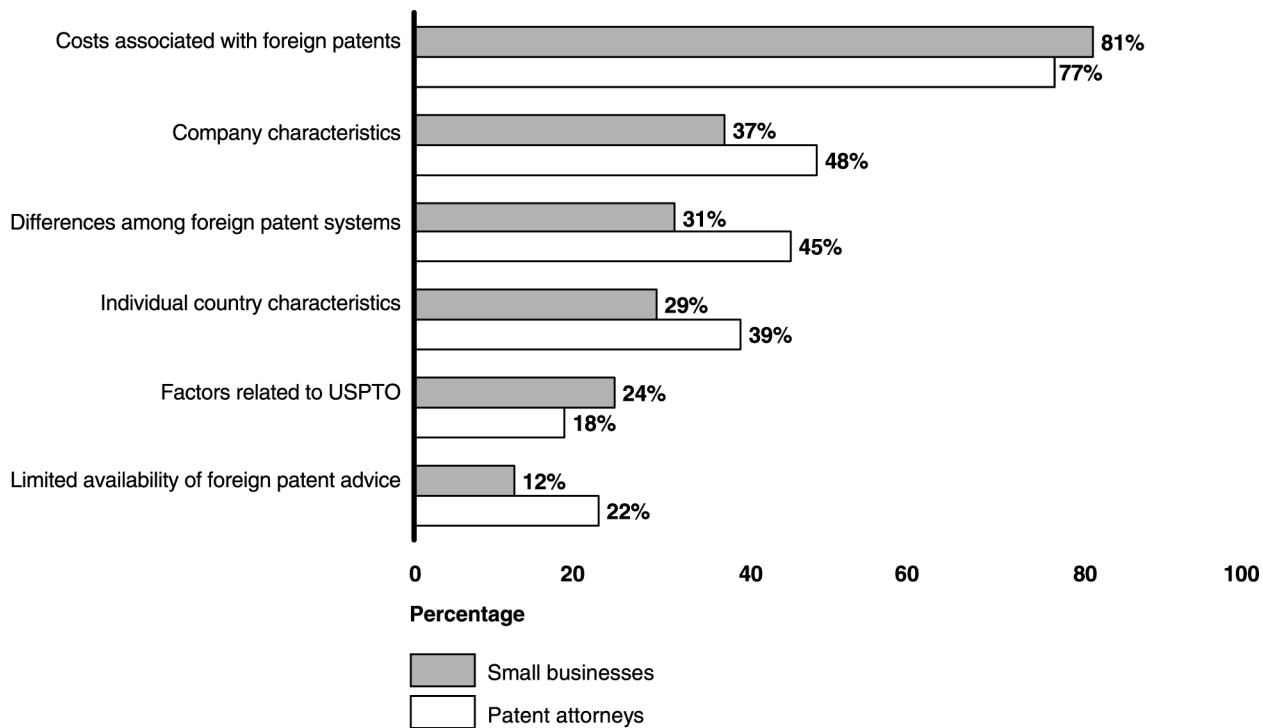
The impediments that the small businesses and patent attorneys rated fell into six broad, overlapping categories: (1) costs associated with foreign patents, (2) characteristics of companies, (3) differences among foreign patent systems, (4) characteristics of individual countries, (5) factors related to USPTO (such as the quality and timeliness of its work), and (6)

availability of advice about foreign patents.⁷ About 80 percent of both the small businesses and patent attorneys believe that the costs associated with foreign patents—including costs to acquire, maintain, and enforce them—greatly impede small businesses’ efforts to patent abroad (see fig. 1).⁸ (We asked the businesses and the patent attorneys to indicate whether the foreign patent impediments that they identified in each category affected small businesses to a very great extent, a great extent, a moderate extent, some extent, or little to no extent.) The two groups also held fairly consistent views about the relative importance of other types of impediments. For example, less than 25 percent of both the small businesses and patent attorneys thought that USPTO-related factors and the availability of U.S. or foreign legal advice about foreign patents were great impediments to small businesses. However, the patent attorneys were more likely than the small businesses to view company characteristics, differences between foreign patent systems, and individual country characteristics as areas that greatly impeded small businesses’ foreign patent efforts.

⁷Based on the patent attorneys’ responses to the first phase of our panel, we developed a list of 46 types of impediments that we grouped into six categories. We then asked the patent attorneys and small businesses to rate the items in each category. We imputed each group’s views about the significance of each category based on their ratings of individual items in the category.

⁸This conclusion is consistent with the results of another study, Joseph J. Cordes, Henry R. Hertzfeld, and Nicholas S. Vonortas, *Survey of High Technology Firms*, a study prepared for the Office of Advocacy, Small Business Administration (Washington, D.C.: George Washington University, February 1999).

Figure 1: Small Businesses' and Patent Attorneys' Views on Types of Foreign Patent Impediments That Small Businesses Face



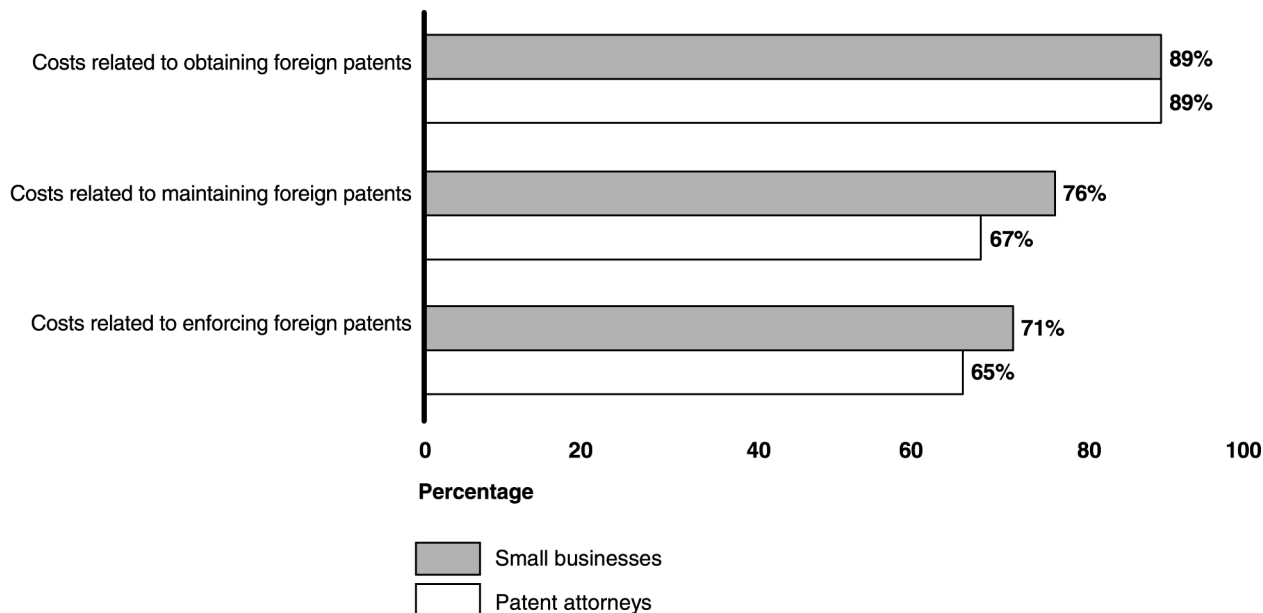
Note: Percentages reflect the number of respondents who rated items within each category as posing a great or very great impediment. Thirty-eight small businesses responded to our survey, and 39 patent attorneys participated in our panel. The number of respondents who rated individual items may be lower. See appendixes IV and V for the actual number of respondents to each item.

Source: GAO analysis of small business surveys and patent attorney panel questionnaires.

Foreign Patent Acquisition Costs Are Considered to Be More Problematic Than Maintenance or Enforcement Costs

We asked the small businesses and patent attorneys to rate several costs associated with foreign patents, including patent acquisition, maintenance, and enforcement costs, in order to understand whether certain patent stages pose more of an impediment than others (for example, whether small businesses can afford to obtain foreign patents but cannot afford to keep or enforce them). As shown in figure 2, nearly 90 percent of the businesses and attorneys regarded patent acquisition costs as a great impediment and thus rated these costs somewhat higher than maintenance or enforcement costs.

Figure 2: Small Businesses' and Patent Attorneys' Views on the Stages of Foreign Patent Costs as Impediments to Foreign Patent Protection



Note: Percentages reflect the number of respondents rating each item as posing a great or very great impediment. Thirty-eight small businesses responded to our survey, and 39 patent attorneys participated in our panel. The number of respondents who rated individual items may be lower. See appendixes IV and V for the actual number of respondents to each item.

Source: GAO analysis of small business surveys and patent attorney panel questionnaires.

According to the businesses and patent attorneys and our analysis, several factors cause foreign patents to be expensive and typically more costly than U.S. patents.

- Companies typically file in several countries at a time, but the exact number depends on the company’s business needs and strategies. For example, the overall patent strategies of two-thirds of the businesses we surveyed ranged from obtaining patents in multiple countries in one region to patenting virtually worldwide. The remaining one-third of the businesses said they typically patent in only one or a few selected countries.
- Applicants incur multiple costs in each country, and many countries’ patent office fees are higher than comparable U.S. fees. Moreover, many of these foreign charges are redundant. For example, applicants may

incur multiple search and examination fees, because each national patent office where they file may conduct its own prior art search and its own examination. Even applicants that use the PCT process to initially obtain a single search or examination may still be required to pay additional examination fees to the national patent offices where they choose to file applications.

- Most patent applications that are filed abroad must be translated into a foreign language at some point. Nearly all of the patent attorneys we surveyed regarded the cost of such translations as a great impediment for small businesses. Several businesses and patent attorneys estimated that translating an application into Japanese, for example, can cost about \$8,000-\$10,000 or more.
- Applications must be customized to meet the patent laws and requirements of each country, and businesses must be represented by foreign patent attorneys or agents in each country where they file applications. These requirements add to the cost of the U.S. and foreign legal fees that businesses incur.

Based on this information, we developed a hypothetical scenario to estimate the minimum cost for a small business of obtaining and maintaining patent protection for a single invention of minimal complexity in the United States and nine major countries.⁹ Such a foreign patent strategy could be considered typical for a small business, according to the attorneys we consulted. As shown in table 1, while the minimum cost to obtain and maintain patent protection in the United States on the invention in our scenario would be about \$10,000, the minimum foreign costs could range from about \$160,000 to \$330,000.¹⁰ These costs include foreign patent office and U.S. or foreign attorney charges for developing and filing a patent application, obtaining an issued patent, and maintaining an issued

⁹To develop a rough estimate of foreign patent costs, we created a relatively straightforward foreign patent scenario that several patent attorneys on our panel advised us could be considered typical for a small business. In our scenario, a fictitious business sought patent protection for an invention in Canada, France, Germany, Ireland, Italy, Japan, South Korea, Sweden, and the United Kingdom, countries where U.S. patent applicants may be likely to file (see app. VI).

¹⁰These estimates are expressed in current year dollars because of a lack of information about the timing and amount of future expenditures for patent maintenance and attorney fees. For additional information on our scope and methodology in developing these estimates, see app.VI.

patent for 20 years.¹¹ Actual patent costs for a patent filing strategy similar to our scenario could be far higher because we assumed that the patent application would not face a difficult examination process in any of the countries. Thus, our scenario eliminated many patent office and legal costs that companies incur in trying to obtain a patent. Actual patent costs would also vary if certain key assumptions were modified. For example, if foreign patent protection was desired in more than nine countries, the costs would increase. Also, if a patent application was longer or more complex than the one in our scenario (25 pages in length), the cost to obtain patent protection abroad would rise because translation expenses and some foreign patent office charges would be higher. Conversely, if patent protection was not maintained for the full 20-year term in each of the countries, official fees and attorney fees to maintain the patent would decrease.¹² The latter condition would reduce the overall cost of foreign patent protection relative to the U.S. cost. (App. VI contains more information about our scenario.)

¹¹In our scenario, we assumed that the patents would be held for the full 20-year term in each country to show what the maximum maintenance costs might be. However, most patents are not held for the full term.

¹²U.S. patent maintenance costs are fully paid by the end of the twelfth year from the date the application was filed, whereas foreign patent maintenance costs continue to be incurred through the twentieth year from the date of application. Thus, holding foreign patents for shorter periods of time reduces the cost of foreign patent protection relative to U.S. costs.

Table 1: Minimum Estimated Costs for a Small Business to Obtain and Maintain U.S. and Foreign Patent Protection for a Single Invention

Stage of patent costs	United States			Nine other countries ^a		
	Official fees ^b	Attorney fees ^c	Total U.S. costs	Official fees ^d	Attorney fees ^e	Total foreign costs
Estimated minimum costs to obtain patent	\$1,010	\$5,402	\$6,412	\$15,517	\$<40,000 – 100,000	\$<55,517 – 115,517
Estimated minimum costs to maintain patent for 20-year period ^f	\$3,000	\$528	\$3,528	\$83,543	\$20,000 – 130,000	\$103,543 – 213,543
Total estimated minimum costs to obtain and maintain patent	\$4,010	\$5,930	\$9,940	\$99,060	\$<60,000 – 230,000	\$<159,060 – 329,060

Note 1: The U.S. application is assumed to consist of 25 pages, five drawings, and 15 claims (including two independent claims).

Note 2: The patents are assumed to be maintained for 20 years in the United States and the nine other countries.

Note 3: U.S. costs are based on USPTO small entity fees and on median attorney costs contained in the American Intellectual Property Law Association's *Report of Economic Survey 2001*.

Note 4: The foreign application is assumed to be filed under Chapter II of the World Intellectual Property Organization's Patent Cooperation Treaty.

Note 5: Foreign costs are based on USPTO's PCT fee schedule, Global IP Estimator data on national patent office fees and translation costs (Global IP Estimator (Kihei, HI:Global I.P. Net, 2002) is a software package that provides cost estimates of international patent applications), and estimates of U.S. and foreign attorney fees that we received from four of our patent attorney panelists.

^aCanada, France, Germany, Ireland, Italy, Japan, South Korea, Sweden, and the United Kingdom.

^bIncludes USPTO small-entity fees to file, allow (or grant), and maintain a utility patent.

^cIncludes U.S. attorney costs to prepare and file the application, issue the allowed patent, and pay U.S. maintenance fees.

^dIncludes PCT fees; national patent office filing, issuance, and maintenance fees; and translation costs.

^eIncludes estimates of U.S. and foreign attorney costs to file the PCT application, represent the applicant before each national patent office, and pay maintenance fees.

^fU.S. maintenance fees are levied three times during the 20-year patent term, while most foreign maintenance fees are levied annually during that period.

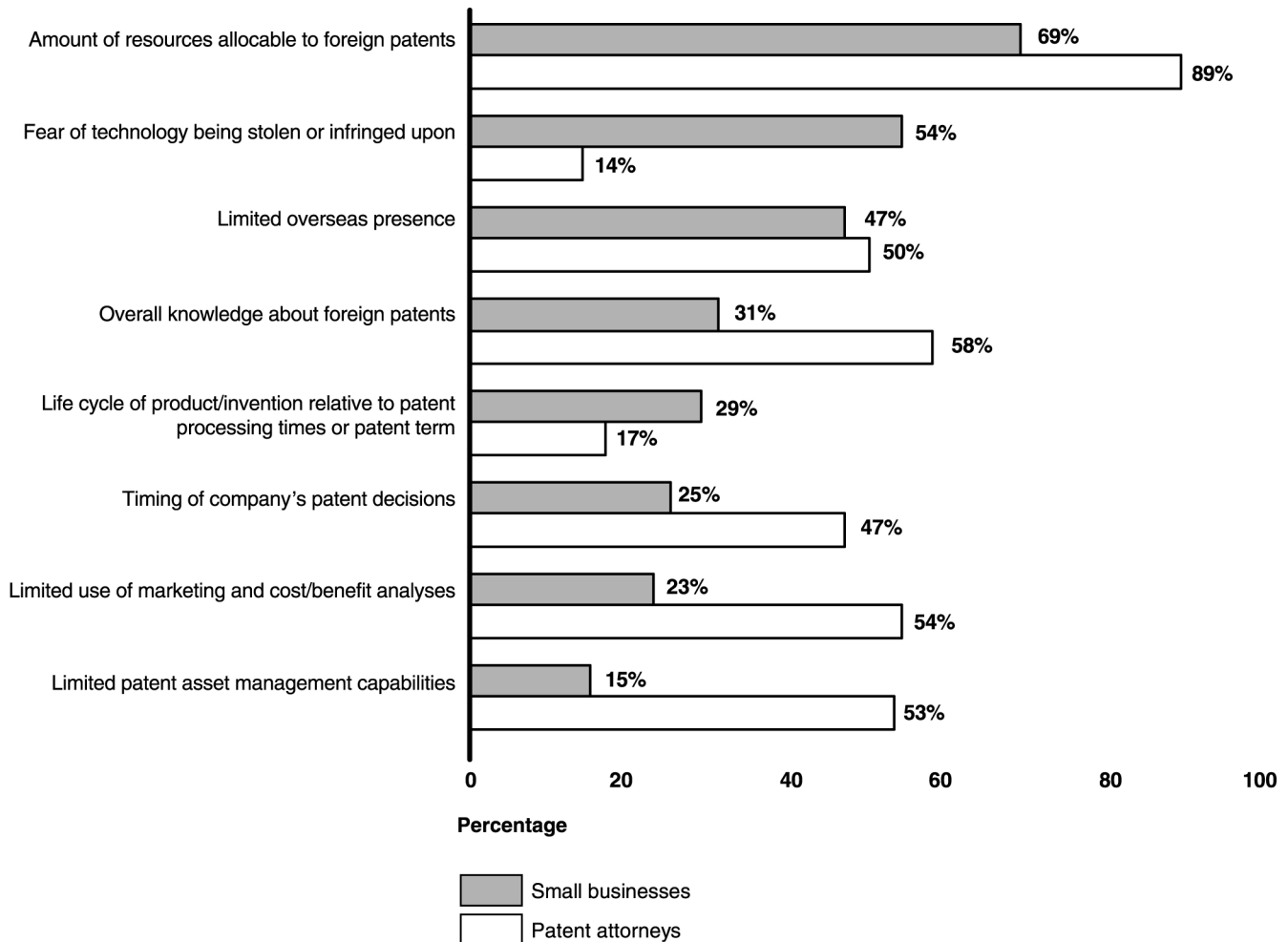
Source: GAO analysis.

Resource and Other Limitations within Small Businesses Can Impede Their Efforts to Patent Abroad

Nearly 40 percent of the small businesses and 50 percent of the patent attorneys believed that certain characteristics of small businesses themselves greatly impede these companies' efforts to obtain foreign patents (see fig. 1). Of the items within this category, about 70 percent of the businesses and about 90 percent of the attorneys thought that small businesses' limited financial resources relative to the high costs of foreign

patents was a great impediment, as shown in figure 3. (Among the businesses we surveyed, some had no revenue yet, so they covered their foreign patent costs using investor-provided funds. Others allocated 5 percent or less of their annual revenue to patents.) The two groups' views on other items in this category diverged, and the attorneys regarded company characteristics as serious impediments more frequently than the small businesses themselves did.

Figure 3: Small Businesses' and Patent Attorneys' Views on Company Characteristics as Impediments to Foreign Patent Protection



Note: Percentages reflect the number of respondents rating each item as posing a great or very great impediment. Thirty-eight small businesses responded to our survey, and 39 patent attorneys participated in our panel. The number of respondents who rated individual items may be lower. See appendixes IV and V for the actual number of respondents to each item.

Source: GAO analysis of small business surveys and patent attorney panel questionnaires.

About half of the small businesses and patent attorneys believed that the tendency for small businesses not to have overseas operations greatly impedes their efforts to patent abroad. The lack of an overseas presence can make it difficult to detect patent infringement and take enforcement actions in other countries, several attorneys said. In that regard, more than

half of the businesses indicated that the fear of losing control over their technology through infringement greatly impeded their company's efforts to patent overseas.

More than half of the patent attorneys believed that limited knowledge among small businesses about foreign patents greatly impedes their efforts to hold patents overseas. Several patent attorneys said that the various foreign laws and systems that regulate patent acquisition and enforcement are highly complex and difficult to understand. In addition, small businesses may not be aware of the multiple patent-filing processes and cost-saving strategies that exist. Unlike large companies, which typically employ their own patent attorneys, small businesses often lack internal expertise about obtaining and managing foreign patents, several attorneys said. As a result, patent attorneys believed that small businesses may be highly dependent on outside patent counsel. Unfortunately, they said, quality advice about foreign patents is expensive and may not be readily available to small businesses.

About one-third of the businesses we surveyed also believed that limited knowledge about foreign patents among small businesses is a great impediment. For example, the executive director of a laboratory said that his company did not know it would have to obtain patents abroad in order to protect its inventions outside of the United States, incorrectly assuming that its U.S. patent offered worldwide protection. The company also initially believed it would be able to obtain one patent to cover all of Europe, which is not possible.¹³ Moreover, officials from an oil drilling products manufacturer said they were surprised to learn that they could not file foreign patent applications in English.¹⁴ Officials from several companies discussed their uncertainty about the various fees and processes that other patent offices require. For example, the vice president of technology for a ceramic fiber insulation company said that small businesses are able to make decisions about where to patent but often do

¹³The 1973 European Patent Convention, which created the European Patent Office, established a single procedure for granting patents in the 24 member countries on the basis of a uniform body of substantive patent law. An application to the European Patent Office is, in effect, a group of national patent applications that are processed together, but become separate patents that are separately maintained and enforced. In July 2000, the European Commission proposed the creation of a single patent that would be legally valid throughout the European Union, but member states continue to debate various aspects of the proposal.

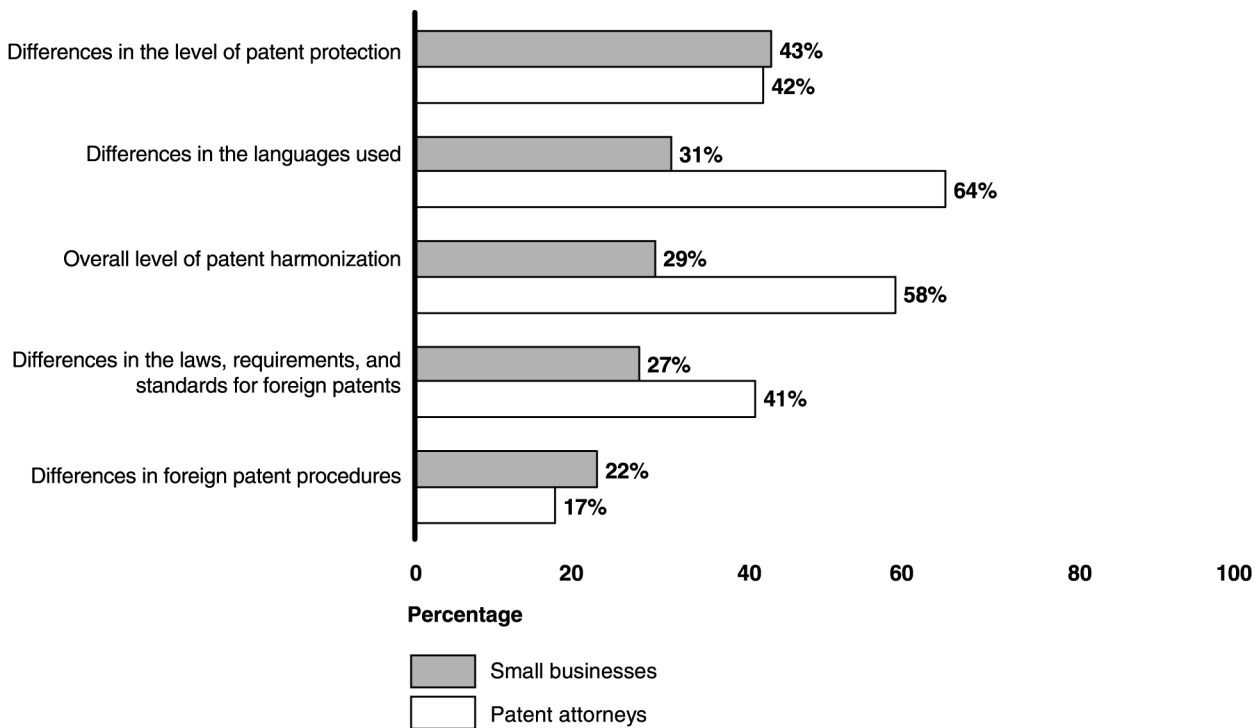
¹⁴Patent applications can be filed in English in countries where English is a national language, such as Canada, Ireland, and the United Kingdom.

not understand what costs are involved. He said that his company, which had grown to 1,000 employees by the time of our study, could not have embarked on its efforts to patent abroad without the help of an outside patent attorney. Many of the businesses we contacted also said they rely on their outside patent attorney to tell them what they need to know about foreign patents.

Differences among Foreign Patent Systems Present Challenges to Small Businesses

About 30 percent of the small businesses and 45 percent of the patent attorneys we surveyed regarded differences among foreign patent systems as a great impediment for small businesses (see figure 1). Foreign patent systems differ from the U.S. system and from each other in many ways, including the breadth of protection that their patents afford, the types of technology that may be patented, and the national patent offices' language requirements and other procedures. Figure 4 shows the two groups' views on the extent to which items in this category impede small businesses. About 40 percent of the small businesses and patent attorneys we surveyed similarly regarded differences in the level of patent protection afforded among countries as a great impediment. About 60 percent of the patent attorneys identified the multiple languages in which foreign patents must be processed and the overall lack of harmonization among national patent systems as great impediments.

Figure 4: Small Businesses' and Patent Attorneys' Views on Differences among Foreign Patent Systems as Impediments to Foreign Patent Protection



Note: Percentages reflect the number of respondents rating each item as posing a great or very great impediment. Thirty-eight small businesses responded to our survey, and 39 patent attorneys participated in our panel. The number of respondents who rated individual items may be lower. See appendixes IV and V for the actual number of respondents to each item.

Source: GAO analysis of small business surveys and patent attorney panel questionnaires.

The differences among patent laws and systems throughout the world can affect small businesses' ability to obtain foreign patent protection that is comparable to their U.S. patent protection, as illustrated in the following examples:

- The United States allows patent applicants a 1-year grace period between the first public disclosure of an invention and the initial patent application date. Many other countries will not award patents if the inventor makes a public disclosure before submitting an application. Because of this difference, U.S. companies that disclose their inventions before applying for a U.S. patent may be ineligible to receive foreign

patent protection in certain countries. Many of the patent attorneys thought that small businesses were generally not aware of this distinction.

- Some technologies or processes that can be protected in the United States by a patent, such as business method inventions and certain software processes and biotechnological inventions, cannot be similarly protected elsewhere. In addition, some countries tend to only allow claims (the definitions in the patent application for the invention) that are narrower or more restricted than what is typically allowed in the United States. As a result, foreign patents may offer different or less protection than a corresponding U.S. patent.
- The act of translating patent applications into other languages, as many countries require, can degrade the technical content of the application and affect the scope of desired protection when translations are inaccurate or incomplete. Examination or enforcement problems can result.

Another prominent difference concerns the treatment of competing applicants. In the United States, when more than one applicant seeks to patent the same technology or process, the patent is granted to the individual or entity that can demonstrate that it was the first to invent the technology or process (commonly referred to as a “first-to-invent” system). All other countries, in cases of competing applications for the same invention by different inventors, grant the patent to the first inventor to file the application for that invention (commonly referred to as a “first-to-file” or “first-inventor-to-file” system).

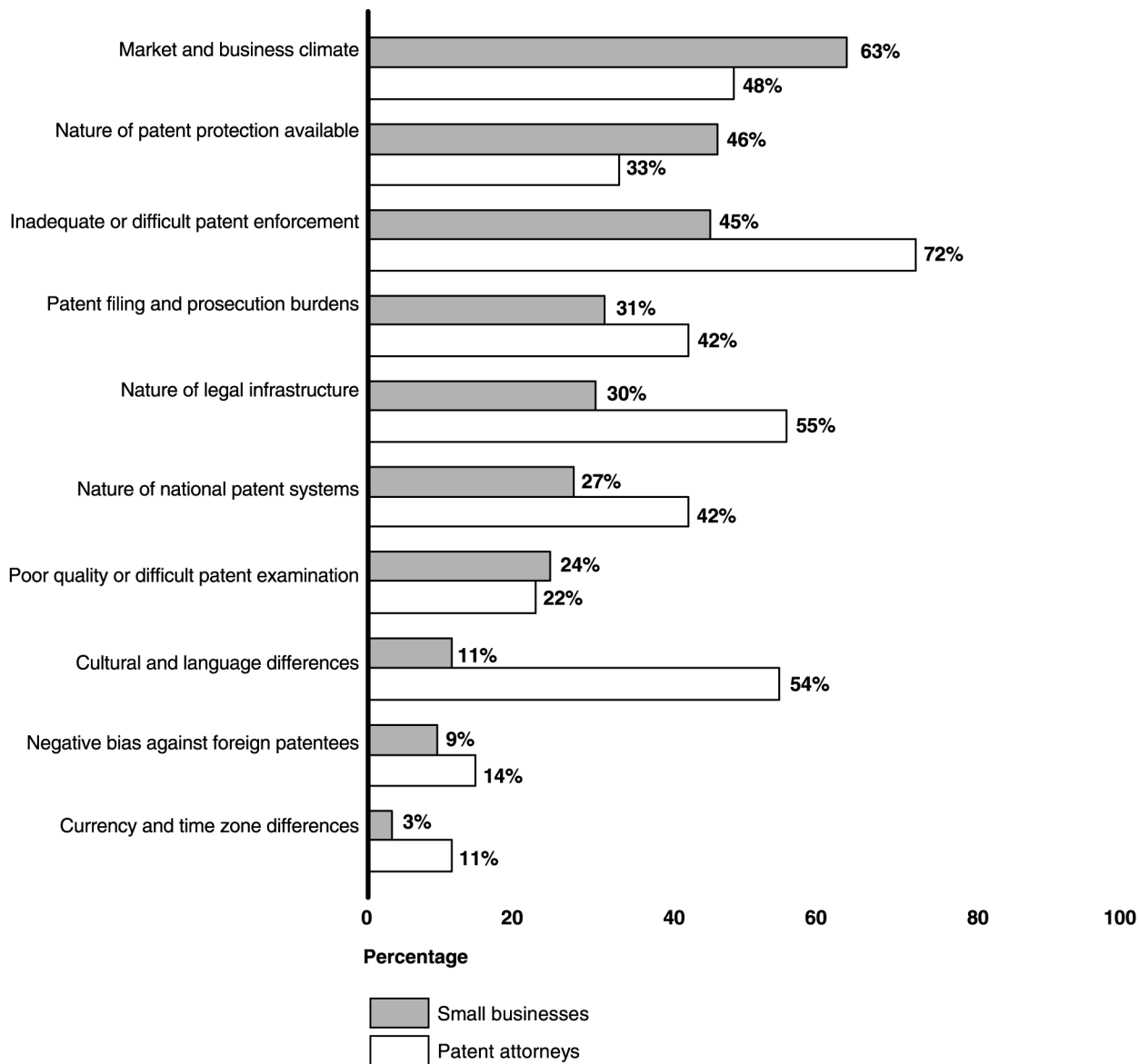
The overall lack of harmonization among the world’s patent systems also increases the difficulty and expense of obtaining foreign patent protection for small businesses, according to our patent attorney panelists. This lack of harmonization not only creates a need for expertise about the various laws and systems among those who wish to patent abroad, but it also creates repetitive requirements, such as multiple prior art searches and application examinations. Officials from several of the small businesses we surveyed said that they have neither the time nor the ability to develop the expertise needed to understand and navigate foreign patent systems. As a result, small businesses must often turn to outside experts. This increases their costs, according to the president of a conveyor belt manufacturer we interviewed. Officials from several of the businesses we surveyed expressed a desire for more uniformity among foreign patent laws and

systems or, ideally, a single patent that would be recognized throughout the world.

Business Climate and Lack of Enforcement in Some Countries Also Present Challenges

About 30 percent of the small businesses and 40 percent of the patent attorneys we surveyed regarded individual country characteristics, such as business climates, aspects of countries' legal and patent systems, and cultural or language differences, as great impediments for small businesses' efforts to obtain foreign patents (see fig. 1). Of the items within this category (see fig. 5), the most significant impediment, according to the small businesses, was other countries' market and business climates (63 percent viewed this as a great impediment). The most significant impediment, according to the patent attorneys, was inadequate or difficult patent enforcement in other countries (72 percent viewed this as a great impediment). The attorneys regarded more items within this category as serious impediments than the small businesses did.

Figure 5: Small Businesses' and Patent Attorneys' Views on Individual Country Characteristics as Impediments to Foreign Patent Protection



Note: Percentages reflect the number of respondents rating each item as posing a great or very great impediment. Thirty-eight small businesses responded to our survey, and 39 patent attorneys participated in our panel. The number of respondents who rated individual items may be lower. See appendixes IV and V for the actual number of respondents to each item.

Source: GAO analysis of small business surveys and patent attorney panel questionnaires.

The patent attorneys described several enforcement issues that may impede small businesses from seeking foreign patent protection in certain countries. For example, they said enforcing patents in some countries is difficult, because the countries have weak or nonexistent patent enforcement laws. In addition, the attorneys said that some countries have acceptable patent enforcement laws, but the enforcement process is slow and ineffective. Finally, the attorneys noted that the remedies available in some countries (such as injunctions to stop infringement or damages to compensate a company for its losses) differ from what is available in the United States and may not be sufficient to counteract the effects of any patent infringement. Ineffective enforcement and limited remedies can be found in developed as well as developing countries, the attorneys said.

Impediments Negatively Affect Small Businesses' Foreign Patent Decisions

The many impediments small businesses face have a negative impact on their foreign patent decisions. Many of the businesses we surveyed said that the impediments they encounter have discouraged or prevented them from obtaining as much foreign patent protection as they would like to have. A majority of the patent attorneys reinforced this view, saying that most small businesses hold fewer foreign patents than they need, primarily because the impediments are too difficult for them to overcome. While large and small businesses generally face the same impediments, according to the attorneys, large businesses are better equipped to deal with foreign patent impediments because they have more financial resources and foreign patent expertise and are better able to enforce their patents abroad.

Impediments Cause Small Businesses to Limit the Number of Foreign Patents They Hold

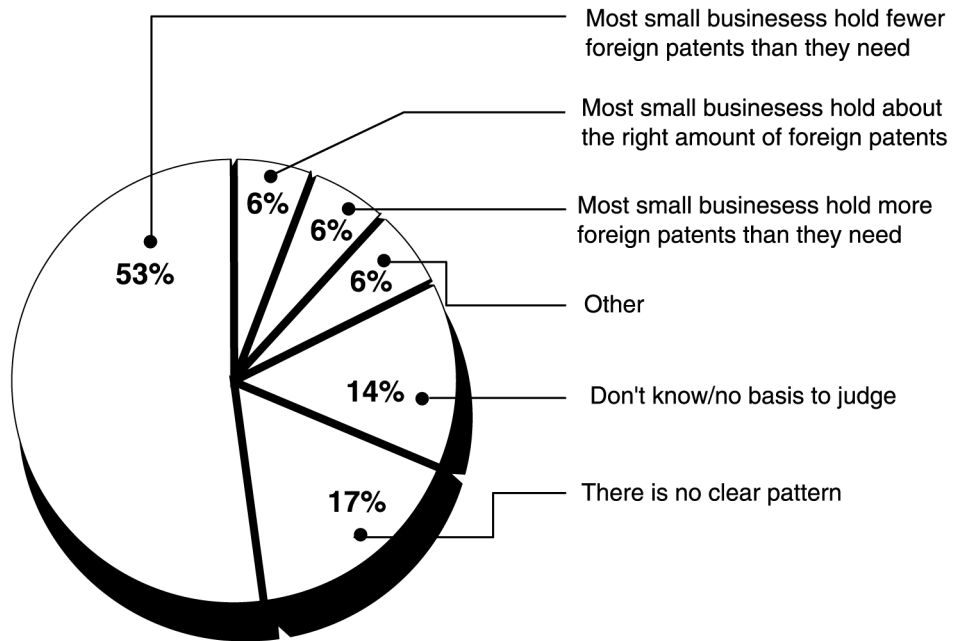
According to some of the small businesses we surveyed, the high cost of foreign patents has caused them to limit the number of countries in which, or the number of products for which, they seek foreign patent protection. For example, the chief executive officer of a company that develops motion control technology, the president of a window shade manufacturer, and the president of an aquaculture supply company told us that their firms have avoided or stopped obtaining patents in certain Asian and European countries with potentially important markets for their products because of high costs and concerns about enforcement. Several businesses said that, in an attempt to manage their foreign patent costs, they had abandoned patent applications before the patent was granted or let certain foreign patents expire. Many of the businesses identified countries where they would like to hold foreign patents for marketing purposes or said that they generally would prefer to have broader foreign patent protection.

The challenges of patent enforcement also affected the businesses' foreign patent decisions. Some companies do not hold patents in countries where, according to their patent attorneys, enforcement is costly or difficult, such as China, Japan, South Korea, and Taiwan. The vice president for research and development at a company that makes rechargeable batteries and power packs told us that his company's products would probably be highly marketable in certain Asian countries. However, his company is not pursuing China, Taiwan, or South Korea as markets because of enforcement concerns. The window shade manufacturer encountered patent infringement in South Korea but decided not to enforce its patent because of the high cost of pursuing an enforcement case. Instead, according to the company's president, it backed out of the market.

The decision to limit their foreign patent protection has affected some businesses' ability to develop foreign sales. For example, two businesses told us that the lack of foreign patent protection in certain countries caused them to lose markets to their competitors. In one instance, competitors used the company's unprotected technology to develop the market. Another business told us that it stops developing products for market when it cannot get the foreign patent protection it needs.

The patent attorneys also recognized that impediments affect small businesses' foreign patent decisions. More than half of the attorneys on our panel said that most small businesses hold fewer foreign patents than they need (as shown in fig. 6), primarily because the impediments they face are too difficult to overcome. Most of the businesses we surveyed held 1-10 foreign patents, but some held more (see figure 14 in appendix II).

Figure 6: Patent Attorneys' Views on Small Businesses' Level of Foreign Patent Protection



Legend

N = 36

Note: Percentage may not add to 100 due to rounding.

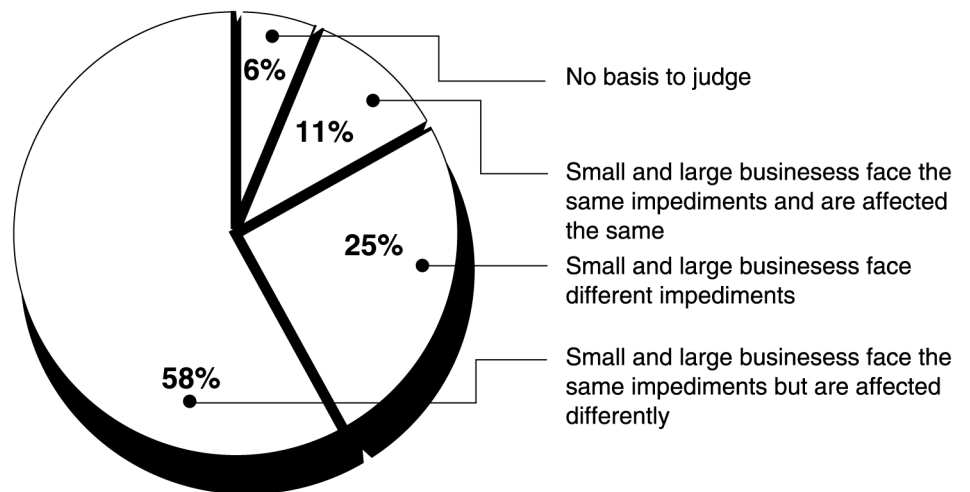
Source: GAO analysis of patent attorney panel questionnaires.

However, some of the patent attorneys believed that small businesses hold more foreign patents than they need. Small businesses that patent abroad should carefully select the countries in which they will file applications and not apply in more countries than necessary, the attorneys said. Further, some attorneys said that these businesses should consider whether the funds they allocate to foreign patents could be put to better use, such as funding additional research and development or acquiring more U.S. patents. Finally, several attorneys advised that foreign patents might not be appropriate for all small businesses.

Impediments Affect Small Businesses More Negatively Than Large Businesses

A majority of the patent attorneys believed that impediments to acquiring foreign patents have a more negative impact on small businesses than on large ones. Fifty-eight percent of the attorneys said that small businesses generally face the same impediments as large ones, but are affected differently, as shown in figure 7. All of the attorneys who held this view believed that small businesses are affected more negatively by the impediments than large businesses. Among the reasons that the attorneys cited for the difference in effect were that large businesses (1) have more resources with which to pay foreign patent costs and to understand foreign patent laws and systems, (2) are more likely to have overseas operations that allow them to market their products and monitor their patents, and (3) are better equipped to enforce their patents.

Figure 7: Patent Attorneys' Views on the Differences in Impediments That Large and Small Businesses Face



Legend

N = 36

Source: GAO analysis of patent attorney panel questionnaires.

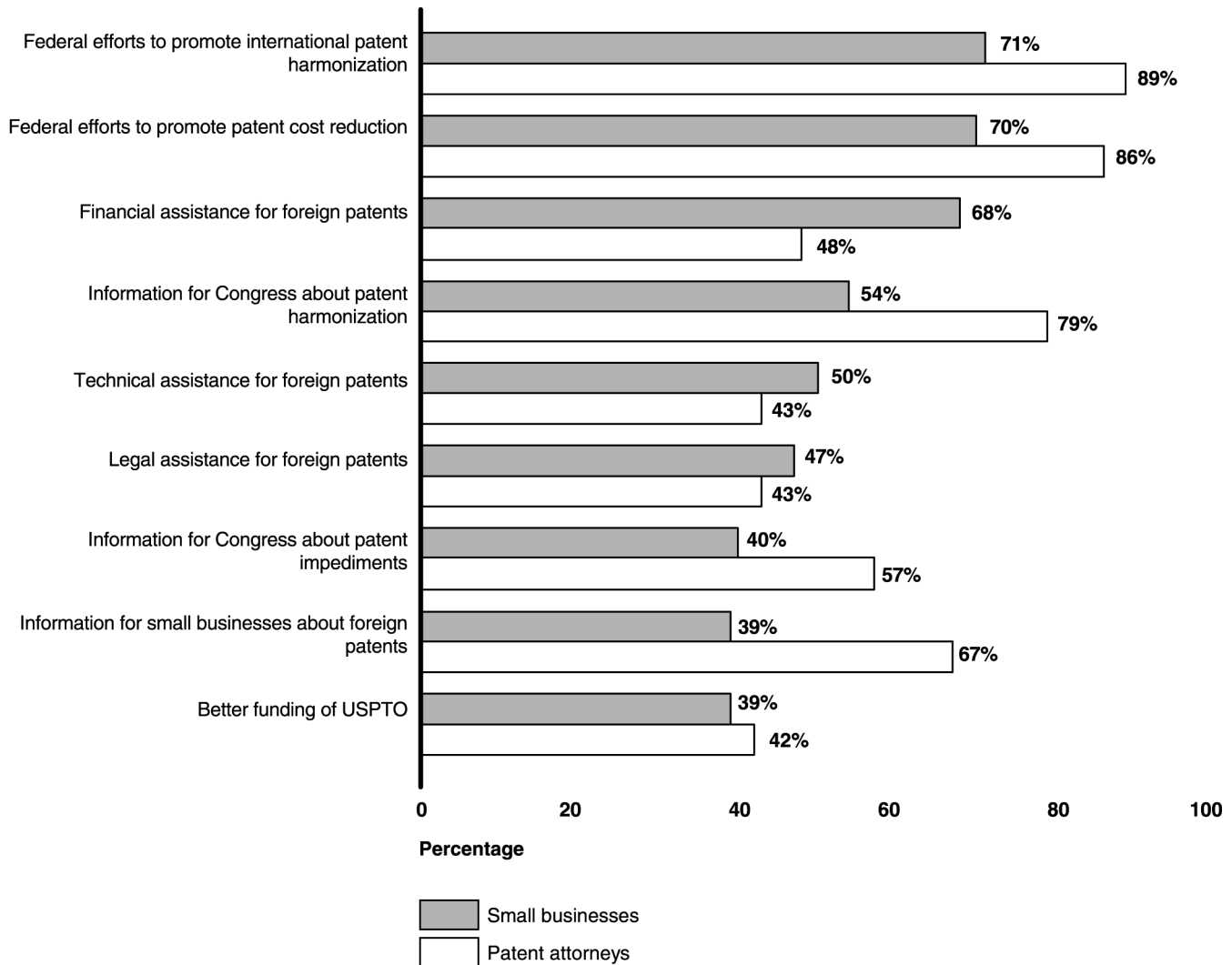
Several Federal Actions Could Help Small Businesses Overcome Impediments

Both the small businesses and the patent attorney panel viewed federal efforts to further promote international patent harmonization and cost reduction as the most promising way to help small businesses overcome the impediments they face to obtaining foreign patents. Among other possible federal actions that we asked them to rate, both groups also believed that informing and educating Congress about the need for patent harmonization would be very useful. However, the small businesses and the patent attorneys held different views about other possible federal actions. For example, 68 percent of the businesses believed that providing federal financial assistance to small businesses to address the high costs of foreign patents would greatly help them obtain such patents, whereas only 48 percent of the patent attorneys held this view. Conversely, 67 percent of the attorneys thought that providing information and education to small businesses about foreign patents would be useful, but only 39 percent of the businesses found value in having such information. No federal programs currently exist to provide this type of information to small businesses.

Federal Efforts to Promote Patent Harmonization Could Reduce Foreign Patent Costs and Complexity

We asked the small businesses and patent attorneys whether the federal government should take any actions to help small businesses overcome the foreign patent impediments they face. (We asked the businesses about the extent to which certain federal actions would help their company's efforts to patent abroad, and we asked the patent attorneys to what extent certain federal actions would be useful and feasible.) As shown in figure 8, about 70 percent of the businesses and about 90 percent of the attorneys rated legislation or other government activity to promote international patent harmonization and international patent cost reduction as the most helpful or useful actions that the federal government could take.

Figure 8: Small Businesses' and Patent Attorneys' Views about Possible Federal Actions to Overcome Foreign Patent Impediments



Note: Percentages reflect (1) the number of small businesses that rated federal actions as likely to help their foreign patent efforts to a great or very great extent and (2) the number of patent attorneys who rated federal actions as a mostly useful or extremely useful way to help small businesses patent abroad. Thirty-eight small businesses responded to our survey, and 39 patent attorneys participated in our panel. The number of respondents who rated individual items may be lower. See appendixes IV and V for the actual number of respondents to each item.

Source: GAO analysis of small business surveys and patent attorney panel questionnaires.

While patent harmonization efforts have been ongoing for several decades, WIPO member countries began two specific initiatives in recent years. First, WIPO members started negotiations in 1995 to streamline and harmonize national and regional patent office requirements related to filing patent applications and maintaining patents. As a result of this effort, WIPO members adopted the Patent Law Treaty in June 2000. However, this treaty is not yet in force. The treaty will simplify the requirements for obtaining a filing date; harmonize the information that national patent offices can require to be provided on patent applications, both in form and content; and provide additional time for filing translations, among other things. These changes are expected to result in easier access to worldwide patent protection and some cost savings for applicants. The United States has signed the treaty, but has not yet presented it to Congress for ratification. The treaty will not enter into force until at least 10 WIPO member countries have ratified it. Only 3 have ratified it to date, according to USPTO officials.

Despite these developments, however, many substantive differences among countries' patent laws remain. WIPO member countries undertook a second initiative in 2000 to try to harmonize these differences. According to USPTO officials, substantive patent law harmonization could produce many advantages. For example, the United States would like other countries to offer patent protection for certain technologies, such as certain software processes and biotechnological inventions, that can currently only be patented in the United States and certain other countries. In addition, if countries adopted more uniform standards and approaches for examining and granting patents, then national patent offices could begin to accept the results of each other's prior art searches and examinations. Such a development would not only reduce the patent offices' workloads, it could also produce time and cost savings for patent applicants.

Despite the potential benefits, however, prior attempts to achieve substantive patent law harmonization were not successful. For example, negotiations that began in the 1980s ended in 1991 because divergent views on major issues could not be resolved. In particular, the United States was not willing to change its first-to-invent system or give up its grace period. Much debate has occurred on the advantages and disadvantages of the first-to-invent and first-to-file systems. Supporters of the first-to-invent system argue that first-to-file systems encourage a "race to the patent office" among patent applicants that disadvantages those with fewer resources, such as some small businesses. However, some patent experts maintain that small entities, which they say can act more quickly than large

businesses, can readily secure patent rights in a first-to-file system.¹⁵ Supporters of first-to-file systems believe they are simpler and more efficient. According to USPTO officials, because these negotiations will address many controversial issues, they should be regarded as a long-term effort. Therefore, they said, the United States may want to consider other ways of making progress on patent law harmonization. They also said that shorter-term efforts to help small businesses may need to be considered.

Financial Assistance Could Help, but Many Concerns Exist

Nearly 70 percent of the businesses indicated that federal financial assistance would greatly help their company's efforts to obtain foreign patent protection. However, several businesses and most of the patent attorneys expressed concerns about the appropriateness of such assistance. In particular, they questioned the basis on which such assistance would be awarded and stated that financial assistance is an indirect solution to the underlying causes of foreign patent costs.

There was no consensus among the small businesses about what type of federal financial assistance would be most useful. They made various suggestions, including government loans, grants, or tax credits, or modifying existing federal programs that fund research costs. Several businesses believed that receiving federal loans or grants would help them file for more patents abroad or maintain foreign patents for a longer period. While several businesses stated that they were not aware of any federal loans that could be used to cover foreign patent costs, Small Business Administration officials told us that loans obtained through their *ExportExpress* program could be used for this purpose.¹⁶ Some businesses said that tax credits for foreign patent costs would enable them to devote more of their own resources to this activity. Others noted that tax credits are not useful to companies that are still in the product development phase

¹⁵Supporters maintain, for example, that small entities can easily and cheaply secure their rights to their inventions by filing "provisional applications" with USPTO, an option USPTO began offering in 1995. Provisional applications can contain less information about the invention than standard patent applications, are not examined for their merits, and allow the applicant 1 year to submit a more complete application. The small entity fee to file such an application is \$80, compared with \$370 to file a standard patent application.

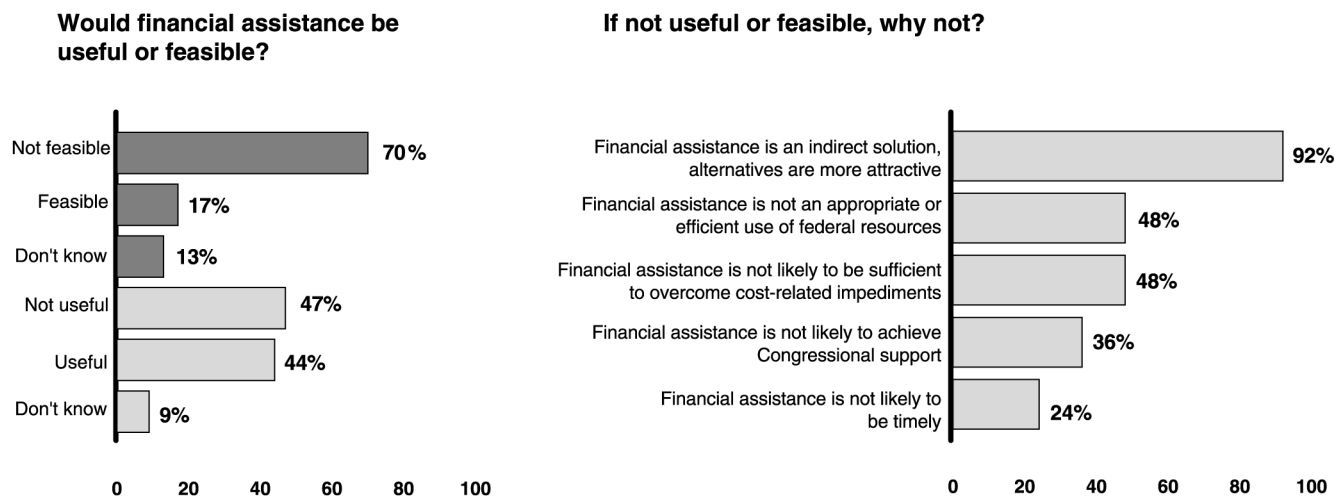
¹⁶The *ExportExpress* loan is designed to help small businesses obtain adequate export financing. Recipients can use its proceeds for a wide range of activities or purposes. Small businesses apply with participating lenders, and SBA guarantees the lenders 85 percent of the loan up to a maximum of \$150,000, making it easier for small businesses to obtain the financing.

and thus have little or no revenue. Finally, several businesses that had received funding to cover their research under the Small Business Innovation Research Program said that allowing companies to use these funds to cover foreign patent costs would help.

However, a number of company officials expressed concerns about the appropriateness or usefulness of federal financial assistance. For example, several company officials said that federal financial assistance might inappropriately encourage companies that should not seek foreign patent protection to do so. One official said that foreign patent costs are an appropriate market barrier, because only companies with good business sense are able to afford them. Another said that companies with valuable ideas will figure out how to pay the costs to protect their ideas. Several company officials that had applied for or obtained federal funding for technology development in the past also expressed concerns that federal funding programs usually entail burdensome paperwork requirements. Finally, some company officials expressed misgivings about a federal program that might increase their taxes.

Many of the patent attorneys also had concerns about the idea of providing federal financial assistance to small businesses for foreign patent costs. Slightly more patent attorneys doubted the usefulness of such assistance, as shown in figure 9, and 70 percent of them thought that financial assistance would not be feasible. In explaining their views, 92 percent of the attorneys said that financial assistance would be an indirect solution to the larger problem of lack of patent law harmonization and the high costs that result. One of the attorneys opposed federal financial assistance for foreign patents because such assistance would support the current cost structure and be, in effect, a transfer of U.S. taxpayer funds to foreign governments. About half of the attorneys said that financial assistance for foreign patents would be an inappropriate or inefficient use of government funds. Several attorneys questioned how the government would decide which inventions to support. About half of the attorneys also said federal financial assistance would not likely be significant enough to help small businesses overcome their cost-related impediments.

Figure 9: Patent Attorneys' Views on the Usefulness and Feasibility of Federal Financial Assistance for Reducing Foreign Patent Costs



Note: Percentages reflect the number of patent attorneys who provided the indicated answers. Thirty-two of the 39 patent attorney panelists participated in this phase of the panel. The number of respondents who rated individual items may be lower. See appendix IV for the actual number of respondents to each item.

Source: GAO analysis of patent attorney panel questionnaires.

Patent Attorneys Thought That Information and Education for Small Businesses Could Help Their Efforts to Patent Abroad

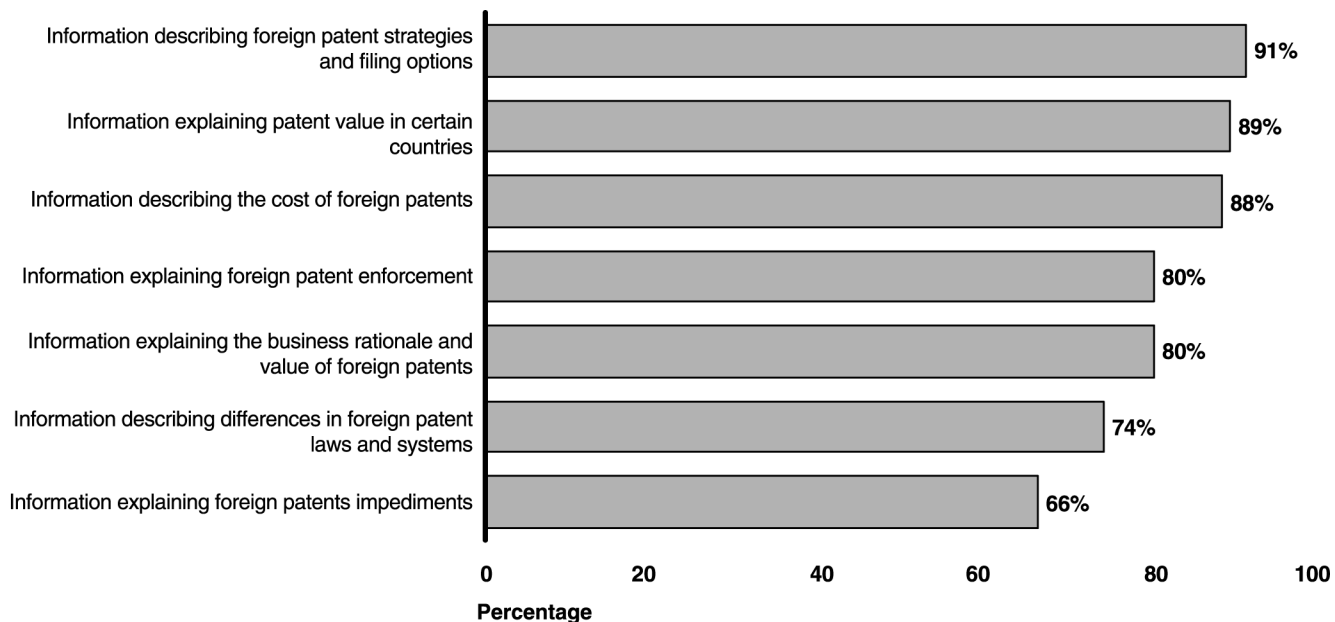
Nearly 60 percent of the patent attorneys believed that small businesses lack sufficient knowledge about foreign patents (see figure 3). Many of the attorneys stated that small businesses often make poor decisions about foreign patents, in part because they do not understand the differences between U.S. and foreign patent laws and standards. In particular, they do not understand how disclosing information about an invention prior to filing a foreign application may cause them to lose foreign patent rights. Many attorneys also believed that because small businesses lack information and knowledge about foreign patents, they (1) fail to assess a broad range of factors that the attorneys felt should be considered when making foreign patent decisions, (2) do not thoroughly weigh foreign patent costs against potential benefits, and (3) do not develop a good business plan for their foreign patents.

Nearly 70 percent of the patent attorneys thought that taking steps to inform and educate small businesses about foreign patents would be a useful federal action (see fig. 8). About 60 percent of them also believed

that doing so would be extremely feasible. We asked the attorneys to rate seven types of information that they thought might be useful; their responses are shown in figure 10. One of the attorneys suggested that we should make the information that we obtained from the patent attorney panel available to small businesses.¹⁷ These various types of information, the attorneys said, would help small businesses become better educated about foreign patents and improve their foreign patent decisions. (See table 5, app. IV, for a list of things that the patent attorneys believed small businesses could do better as they seek to hold foreign patents.) About 40 percent of the businesses also thought that additional information would help their company's efforts to patent overseas. (There were no discernable similarities among the businesses that held this view—they operated in various industries, ranged in size from 1 to 600 employees, and most held 1-10 foreign patents.)

¹⁷A GAO report on the factors that small businesses should consider when making foreign patent decisions and on other advice that the attorneys provided is forthcoming.

Figure 10: Patent Attorneys' Views on Usefulness of Information That Federal Government Could Provide to Small Businesses



Note: Percentages reflect the number of patent attorneys who rated items as mostly useful or extremely useful ways to help small businesses patent abroad. Thirty-nine patent attorneys participated in our panel. The number of respondents who rated individual items may be lower. See appendix IV for the actual number of respondents to each item.

Source: GAO analysis of patent attorney panel questionnaires.

Upon being provided with the preliminary results of our study, SBA and USPTO officials said that it would be feasible and fairly easy to make information about foreign patents available to small businesses. Both agencies have Internet sites where they could post such information, the officials said, along with links to other information about foreign patents.

Conclusions

Seeking and obtaining foreign patents is an important, and sometimes necessary, strategic action for most of the small businesses we surveyed. However, few of them were fully satisfied with the extent of foreign patent protection they have acquired, and most would hold more foreign patents if doing so were less expensive and less complicated. The existence of multiple and varied foreign patent laws and systems is a major contributor to both the expense and complexity of obtaining foreign patents. Reducing foreign patent costs and simplifying the processes for obtaining them are the primary reasons that WIPO member countries have engaged in efforts

to harmonize their patent laws and systems. WIPO's Patent Law Treaty is an important step toward reaching that goal and, once ratified, should benefit small businesses that need foreign patent protection. The completion of current or future negotiations to address the remaining substantive differences among countries' patent laws could produce substantial additional benefits for small businesses seeking to patent abroad. However, these negotiations are a long-term effort, and their success is uncertain.

The groups we surveyed supported other steps that would also address the expense and complexity of obtaining foreign patents, including federal financial assistance and information programs. While financial assistance might help some companies' efforts to patent abroad, survey respondents raised many concerns about its appropriateness as a policy measure. Developing information about other countries' patent laws, foreign patents costs and strategies for managing these assets could also help small businesses, the surveys disclosed. Such information could make the process less complex, particularly for those businesses that are beginning to consider whether foreign patents are appropriate for their operations. Unlike other possible federal actions, the government could establish information programs at low cost and with relative ease. These programs would provide immediate assistance to small businesses seeking to patent abroad.

Recommendation for Executive Action

In order to address the impediments that small businesses face in obtaining foreign patents, we recommend that the Director of the U.S. Patent and Trademark Office obtain input from small businesses, experts in global patent issues, and other interested parties in order to assess the advantages and disadvantages of various options for achieving additional patent law harmonization.

In addition, we recommend that the Administrator of the Small Business Administration, with assistance from the Director of the U.S. Patent and Trademark Office, collect and make available information about key aspects of foreign patent laws, requirements, procedures, and costs that would be useful to small businesses that are considering whether to obtain foreign patent protection.

Agency Comments and Our Response

We requested comments on a draft of this report from the U.S. Patent and Trademark Office and the Small Business Administration. USPTO and the SBA provided written comments, which are reprinted in appendixes VII and VIII. USPTO also provided technical comments, which we incorporated as appropriate. In their comments, both agencies recognized the important roles of small businesses as innovators and contributors to the U.S. economy.

USPTO did not either agree or disagree with either of our recommendations, but instead provided suggestions that slightly modified the scope and intent of the recommendations. For example, USPTO suggested that the first recommendation should be modified to recommend that USPTO “continue to consider” the advantages and disadvantages of various harmonization options based on input from small businesses and others. While we recognize that USPTO has obtained some input from small businesses about patent law harmonization, most of this input has been in the form of responses to federal register requests for comment from the public. We have retained our recommendation as written because we believe that USPTO needs to be more active in obtaining input about harmonization from small businesses. USPTO’s suggestions for the second recommendation indicated that it was not comfortable helping to develop original, specific information about foreign patent laws, requirements, procedures, and costs. We agreed with SBA’s concerns and modified the recommendation to direct the agencies to collect and make available existing information.

SBA said it would be pleased to disseminate information about foreign patent protection to small businesses, but lacked the expertise to develop this information. We agreed with SBA’s concern, which is similar to USPTO’s concern, and modified the recommendation.

As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after its date. At that time, we will send copies of this report to the Chairman of the Senate Small Business and Entrepreneurship Committee, the Ranking Minority Member of the House Committee on Small Business, and other interested congressional parties; the Administrator of the Small Business Administration; and the Director of the U. S. Patent and Trademark Office. Copies will be made available to other interested parties upon request. In

addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions concerning this report, please call me at (202) 512-4346. Additional GAO contacts and staff acknowledgments are listed in appendix IX.

A handwritten signature in black ink that reads "Loren Yager". The signature is written in a cursive style with a large initial "L" and "Y".

Loren Yager, Director
International Affairs and Trade

Objectives, Scope, and Methodology

The Ranking Member of the Senate Committee on Small Business and Entrepreneurship and the Chairman of the House Committee on Small Business asked us to analyze (1) whether small businesses face impediments in obtaining foreign patent protection, (2) what impact any impediments have on their foreign patent decisions, and (3) whether any federal actions could help small businesses overcome the impediments they may face in obtaining foreign patents. We collected information on these objectives in two ways. First, we identified and solicited information on each objective from a panel of 39 U.S. patent attorneys with expertise in obtaining foreign patents. Second, we surveyed a small sample of small businesses that had obtained or had considered obtaining foreign patent protection in the last few years, asking them to provide information on each of our three objectives. We formulated the questions in our small business survey based on the information we obtained from the patent attorney panel. In our analysis, we took into account the possibility that some of the information we collected might reflect self-interest on the part of the patent attorneys and small businesses.

The Expert Panel

To identify potential panelists with recognized expertise in obtaining foreign patents, we invited recommendations from participants at intellectual property conferences we attended in 2001. We also sought recommendations from officials of several intellectual property organizations, including the American Intellectual Property Law Association, the Intellectual Property Owners Association, and the Intellectual Property Committee of the American Bar Association, as well as from former high-level U.S. Patent and Trademark Office (USPTO) officials. We contacted 55 of these potential panelists to ascertain their areas of professional expertise.

We selected our panelists using predetermined criteria, which included the (1) number of times that we received recommendations about individuals, (2) number of years of experience they had in obtaining foreign patents, (3) extent of their experience in filing patent applications on behalf of small businesses, (4) evidence of their having published articles in professional journals or having made presentations at intellectual property-related conferences, and (5) evidence of their having chaired committees of professional intellectual property associations. In addition to these criteria, we made sure that our final panel included representative patent attorneys from (1) major industries where patenting in the United States is important, (2) major geographic regions of the United States, (3) law firms where they were “in-house” counsel (that is, patent attorneys who were employed

directly by a company) or “outside” counsel (patent attorneys who advised one or more clients), and (4) law firms that specialize in intellectual property as well as general practice law firms that offer intellectual property services.

After applying these criteria, we invited 39 patent attorneys to be on our expert panel. All accepted. At the time they were invited to be members of our panel, about 46 percent of the panelists were in-house counsel for large or small companies, while about 54 percent were outside counsel. Nearly 90 percent of the attorneys on our panel had experience advising small businesses about patent issues. The combined expertise of the attorneys on our panel covered a broad spectrum of technologies, including electrical, mechanical, chemical, pharmaceutical, biotechnology, semiconductors and computers, consumer products, medical products, manufacturing, and oil.

We obtained the patent attorneys’ views through an iterative Web-based panel that consisted of three phases (the results are contained in app. IV). All 39 attorneys participated in the first phase, in which we posed open-ended questions. In the second phase, 36 attorneys (92 percent) responded to a close-ended questionnaire that we developed from the patent attorneys’ responses in the first phases. For the third phase, 32 attorneys (82 percent) expanded upon particular issues that arose in the second phase.

The First Phase

In the first phase of the expert panel, which ran from July 19 to August 28, 2001, we asked the attorneys to respond to seven open-ended questions about broad issues concerning foreign patents and small businesses. We developed these questions from the findings of prominent studies on patent issues that we reviewed and from interviews we held with several U.S. patent attorneys and small businesses. Specifically, we asked the attorneys about

- factors that businesses should consider in deciding whether or not to seek, obtain, and maintain foreign patent protection;
- impediments that businesses face in seeking, obtaining, and maintaining foreign patent protection;
- possible differences in impediments between small and large businesses;

- likely missteps that small businesses might typically make in seeking, obtaining, and maintaining foreign patent protection;
- the likelihood that small businesses are generally seeking, obtaining, and maintaining an amount of foreign patent protection that is appropriate for their business needs and plans;
- possible things that small businesses could do better when they consider whether to seek, obtain, and maintain foreign patent protection; and
- whether any public assistance (for example, grants, technical assistance, and so on) or legislation should be introduced to help small businesses overcome any foreign patenting challenges.

We pretested the questions for the first survey phase with three of the panelists to ensure that the questionnaire (1) was clear and unambiguous and that the terms we used were precise, (2) did not place an undue burden on individuals completing it, and (3) was independent and unbiased.

We performed a content analysis of the first phase that identified major themes within each question and grouped the themes into several categories. To maintain standards of methodological integrity, two coders independently performed the content analysis and then met to reconcile differences. Any issues that the two original coders could not reconcile were referred to other independent coders for a final determination. After analyzing questions for the first survey phase, we crafted close-ended questions for the second phase.

The Second Phase

In the second phase, which ran from November 5 to 26, 2001, we asked the panelists to respond to about 40 close-ended questions that contained over 125 specific items. The purpose of the second phase was to provide the panelists with the opportunity to consider the other panelists' responses to the first phase and to respond in a structured, quantifiable way. The questions for the second phase covered most, but not all, of the questions from the first phase. In a few cases, we found the responses to two questions covered similar themes, and in another case, we found that we could use the responses without asking the questions during a second phase.

For the second phase, we framed very detailed questions on the attorneys' responses to impediments to patenting overseas (question 2 from the first phase), things small businesses could do better (question 6 from the first phase), and possible public assistance and legislation (question 7 from the first phase). For these questions, we presented the panelists with lists of themes grouped into categories. We asked the panelists to rank these items on five-point scales according to dimensions such as the items' importance and feasibility. To obtain reactions to the first phase's question on differences between large and small businesses (question 3 from the first phase), and the degree of patent protection that these businesses received (question 5 from the first phase), we crafted a few close-ended questions that encapsulated the major issues that the panelists raised. We pretested the questions for the second phase with two of the panelists, using the same methods as those we employed for the first phase.

The Third Phase

In the third phase, which ran from January 14 to February 8, 2002, we asked the panelists to expand on their views about the usefulness and feasibility of federal financial assistance to specifically address the cost-related impediments that small businesses face. We presented the panelists with statistical results from the second phase and noted that while the panelists viewed cost-related impediments as the most significant barriers that small businesses face, they also viewed financial assistance as the least useful of the federal assistance actions that they rated. We posed three close-ended questions to better understand the panelists' views about financial assistance. We also posed one open-ended question asking the panelists to discuss how, in the absence of federal financial assistance, small businesses could address the cost-related impediments that they face. We did not pretest the third-phase questions.

In this report, we present (1) the results of the close-ended questions from the second and third patent attorney survey phases and (2) illustrative examples taken from their responses to the open-ended questions in the first survey phase.

The Small Business Survey

To answer our three report objectives, we also conducted a survey of small U.S. businesses. Because we wanted to understand how small businesses make decisions about whether or not to obtain foreign patents and to gain their views on our study objectives, we surveyed businesses that had

patented inventions in the United States and had also obtained or considered obtaining foreign patents.

There is no database of U.S. small businesses that have obtained patents overseas. To help us identify and enumerate these businesses, USPTO provided us with a database of issued U.S. patents for which applications were filed in 1997 by applicants that claimed small entity status. We chose 1997 as the application year in order to maximize the possibility that the set of small businesses had applied for and received foreign patents based on their U.S. patents by the time of our study.¹⁸

While this database contained reliable information on patents issued in the United States, USPTO officials reported, it had major limitations as a frame from which we could draw a representative sample of small U.S. businesses that had patented overseas. In particular, the officials noted major limitations as to whether the database contained only small businesses, whether the businesses were U.S. owned, and whether the businesses had an interest in obtaining patents overseas.

Consequently, in order to survey small U.S. businesses that had patented overseas, we were required to locate and screen all the patent owners in the USPTO's database. We had to screen the patents owners to find out if they were (1) small businesses, (2) U.S. companies, and (3) interested in patenting overseas. As there were more than 10,000 patents issued to applicants identifying themselves as small businesses in the 1997 database, we realized that it would be impractical to conduct a large, generalizable survey of the entire database. Instead, we decided to conduct a small, randomly selected sample of small businesses that had obtained or considered obtaining overseas patents in the last few years.

Our initial goal was to survey a minimum of 30 companies. Because the importance of patents varies by industries, we wanted to ensure that we contacted small businesses from a broad range of major industries. Therefore, we selected from the USPTO database a random sample of 600

¹⁸Under the 1883 Convention for the Protection of Industrial Property (Paris Convention), as amended, patent applicants must file foreign patent applications within 1 year of the date on which they filed their domestic applications. In 2000, the average pendency period for patent applications filed with USPTO was 25 months from the time of application, while the average pendency period for applications filed with the European Patent Office was 73 months from the time of application. Similar statistics for Japan, another major patent jurisdiction, were not available.

companies stratified equally across the six USPTO technology centers that existed in 1997.¹⁹ USPTO officials explained to us that they assign patents for examination according to the invention's area of technology and that choosing sample patents from within each technology center would be a reasonable way to get a broad array of companies and industries. Our selection method ensured that we gave equal weight to all six technology centers.

We screened our sample and removed entities that appeared to be foreign companies or universities. Working sequentially through our randomly sorted, stratified list of companies, we conducted Web searches on 278 businesses to locate information about them. The distribution across the technology centers of these 278 businesses we researched is shown in table 2, row 1. We stopped conducting Web searches when we had found contact information for at least 25 businesses in each technology center, as shown in row 2, at which point we had a total of 156 businesses.

¹⁹In fiscal year 1997, USPTO's technology centers and codes were the following: 1600 – Biotechnology, Organic Chemistry & Designs; 1700 – Chemical and Material Engineering; 2700 – Communications and Information Processing; 2800 – Physics, Optics, System Components & Electrical Engineering; 3600 – Transportation, Construction & Agriculture; and 3700 – Mechanical Engineering, Manufacturing & Products. In fiscal year 2001, the 2700 technology center was split into two groups: 2100 – Computer Architecture, Software & Electronic Commerce; and 2600 – Communications.

Appendix I
Objectives, Scope, and Methodology

Table 2: Statistics on the Number of Small Businesses Screened and Selected for GAO’s Survey

Type of business	USPTO Technology Center code						Total
	1600	1700	2700	2800	3600	3700	
1. Businesses for which GAO conducted Web search	45	42	45	41	49	56	278
2. Businesses for which GAO found contact information	25	26	25	27	26	27	156
3. Businesses that met criteria for the survey and agreed to participate in the survey	15	15	17	10	14	9	80
a. Businesses with no interest in obtaining foreign patents	1	1	7	2	4	3	18
b. Businesses with an interest in obtaining foreign patents that GAO surveyed or asked to pretest survey	14	14	10	8	10	6	62
4. Businesses that responded to our survey	8	11	4	6	5	4	38

Legend

- 1600 = Biotechnology, Organic Chemistry & Designs
- 1700 = Chemical and Material Engineering
- 2700 = Communications and Information Processing
- 2800 = Physics, Optics, System Components & Electrical Engineering
- 3600 = Transportation, Construction & Agriculture
- 3700 = Mechanical Engineering, Manufacturing & Products

Note: We pretested our survey with 2 of the 62 businesses but did not include these responses in our survey results. We modified the survey and pretested with a third business, whose responses we included in the survey results.

Source: GAO small business survey.

We conducted telephone screening interviews with the 156 businesses for which we found contact information. In these interviews, we asked the businesses what their current size was based on the number of their employees, whether they had obtained or considered obtaining foreign patents, and whether they would be willing to participate in our survey. Of the businesses we contacted, 80 met our criteria and agreed to participate in our survey, as shown in table 2, row 3. Of these, 18 businesses said that they did not have an interest in obtaining foreign patents, primarily because the U.S. market sufficiently met their needs or there were no foreign markets for their products. We decided not to include these businesses in our survey.

Sixty-two businesses said that they did have an interest in obtaining foreign patents. Of these, 46 said they had done so, and 16 said they had considered obtaining foreign patents (see table 3).

Table 3: Foreign Patent Experience of the Small Businesses That GAO Surveyed

Type of foreign patent experience	USPTO Technology Center code						Total
	1600	1700	2700	2800	3600	3700	
Number of businesses that had obtained foreign patents	13	11	7	6	5	4	46
Number of businesses that had considered obtaining foreign patents	1	3	3	2	5	2	16
Total number of businesses	14	14	10	8	10	6	62

Legend

- 1600 = Biotechnology, Organic Chemistry & Designs
- 1700 = Chemical and Material Engineering
- 2700 = Communications and Information Processing
- 2800 = Physics, Optics, System Components & Electrical Engineering
- 3600 = Transportation, Construction & Agriculture
- 3700 = Mechanical Engineering, Manufacturing & Products

Note: We pretested our survey with 2 of the 62 businesses but did not include their responses in our survey results. We modified the survey and pretested with a third business, whose responses we included in the survey results.

Source: GAO small business survey.

We developed the small business survey based on the patent attorneys' responses to the second phase of the patent attorney panel survey. We asked the businesses to rate the extent to which, in making their decisions about foreign patents, they considered 13 broad categories of factors and faced 32 broad categories of impediments. We also asked them to indicate the extent to which nine types of possible federal assistance options would help them to patent abroad. Respondents were asked to rate each question on a five-point scale.

We pretested the survey with two of the businesses that had agreed to participate to ensure that the questionnaire (1) was clear and unambiguous and that the terms we used were precise, (2) did not place an undue burden on the businesses completing it, and (3) was independent and unbiased. Based on the results of these pretests, we modified the survey design and questions. We pretested the modified survey with a third business,

following the procedures described above, and did not make further modifications. We included this pretest in our overall survey results.

We faxed the survey to 59 businesses in December 2001. In all, 38 of the 59 companies we surveyed responded. (See app. V for the entire survey and the results.) Although we initially randomly selected the sample of small businesses, the number we ultimately consulted was limited because information was not available for a substantial number of businesses. Therefore, the information in this report does not represent the overall set of small businesses that seek foreign patent protection. After receiving these responses, we conducted follow-up telephone interviews with 18 of the small businesses to obtain more detailed comments about their answers, to understand more about their foreign patent decisions, and to discuss the impact of foreign patent impediments on those decisions.

In this report, we present (1) the results of the close-ended questions from the small business survey and (2) illustrative examples from our telephone interviews of small businesses.

We did our work from May 2001 to June 2002 in accordance with generally accepted government auditing standards.

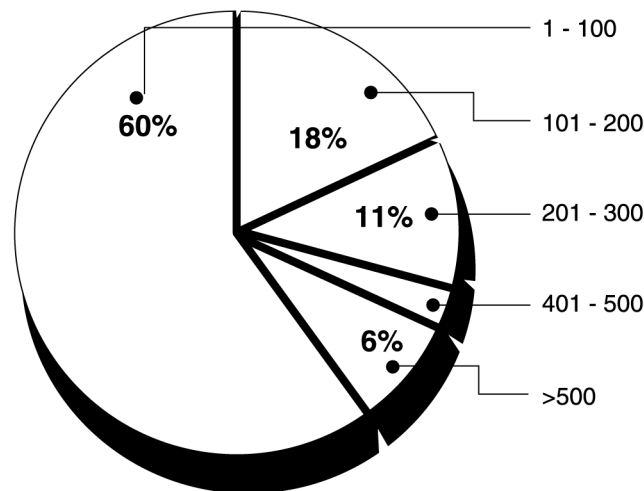
Information about the Small Business Survey Population

Thirty-eight small businesses responded to our survey about issues related to foreign patents. These businesses ranged in size based on number of employees, operated in a cross-section of industries, were based throughout the United States, and had various levels of experience with foreign patents. This appendix provides descriptive information about these small businesses.

Size of Businesses Surveyed

We selected potential businesses for our survey based on their claim in a 1997 U.S. patent application that they were a small business (having 500 or fewer employees), as shown in figure 11. While most of the businesses that responded to our survey continued to meet this definition at the time of our survey (December 2001), some were larger. Many of the surveyed companies had grown in size since filing their 1997 patent application, some through acquisitions of or by, or joint ventures with, other companies. However, others had become smaller since 1997.

Figure 11: Number of Employees in Small Businesses That GAO Surveyed

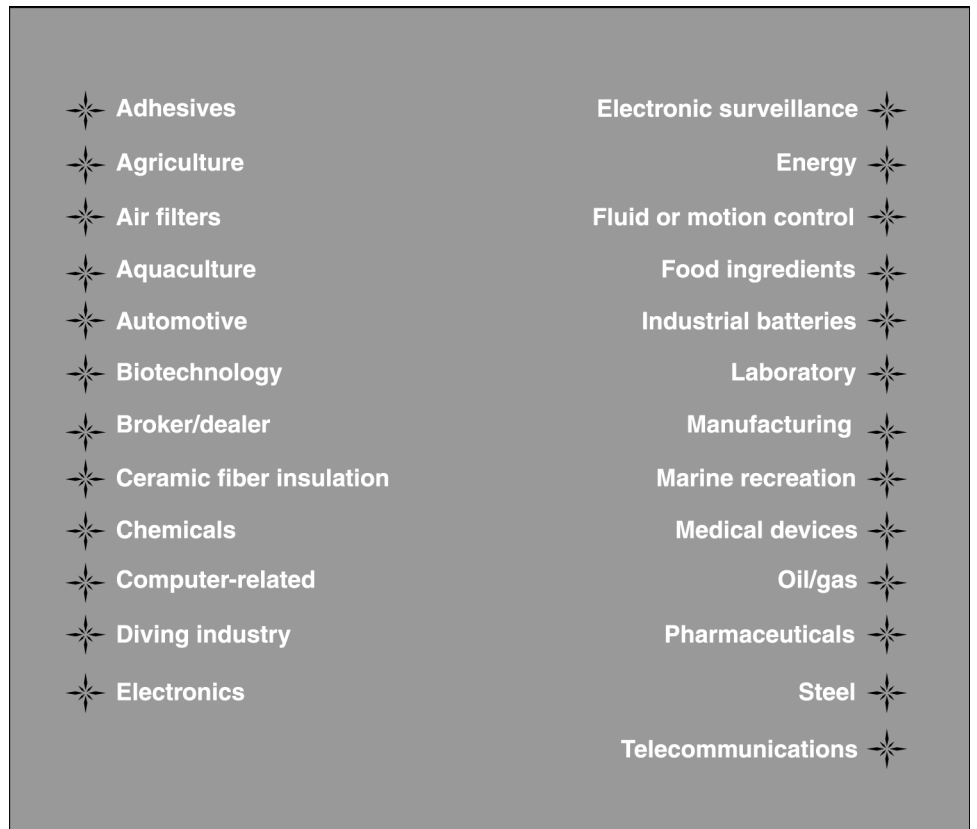


Source: GAO analysis of small business surveys.

Industries of Businesses Surveyed

We identified the businesses we surveyed based on the technological classification of a U.S. patent they had applied for in 1997. However, the technology areas in which businesses obtain patents do not necessarily correspond to the industry the business is in. We asked the businesses to self-identify their industry, as shown in figure 12.

Figure 12: Industries of Small Businesses That GAO Surveyed

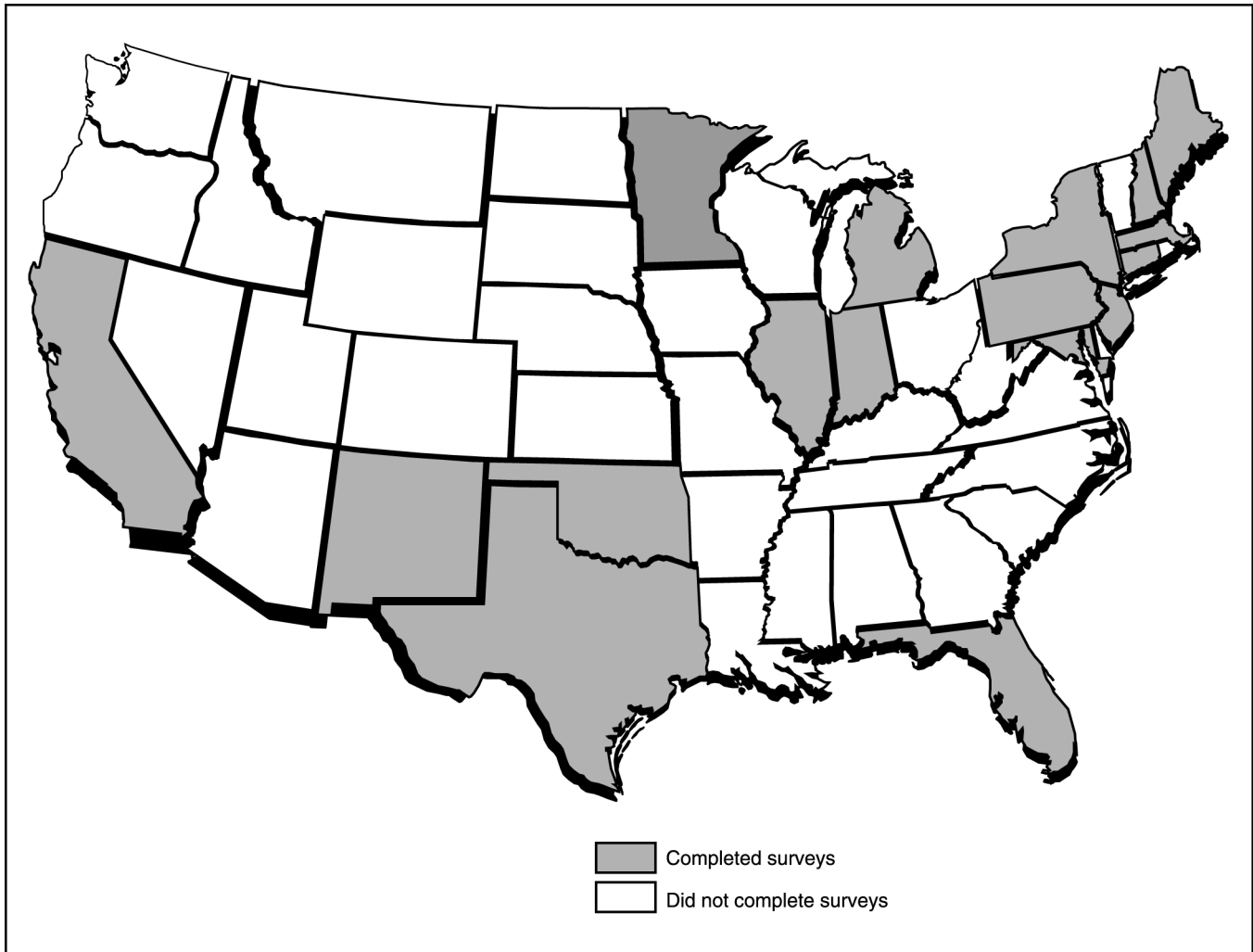


Source: GAO analysis of small business surveys.

Locations of Businesses Surveyed

The 38 businesses that responded to our survey were based in 19 states throughout the United States, as shown in figure 13.

Figure 13: Locations of Small Businesses That GAO Surveyed

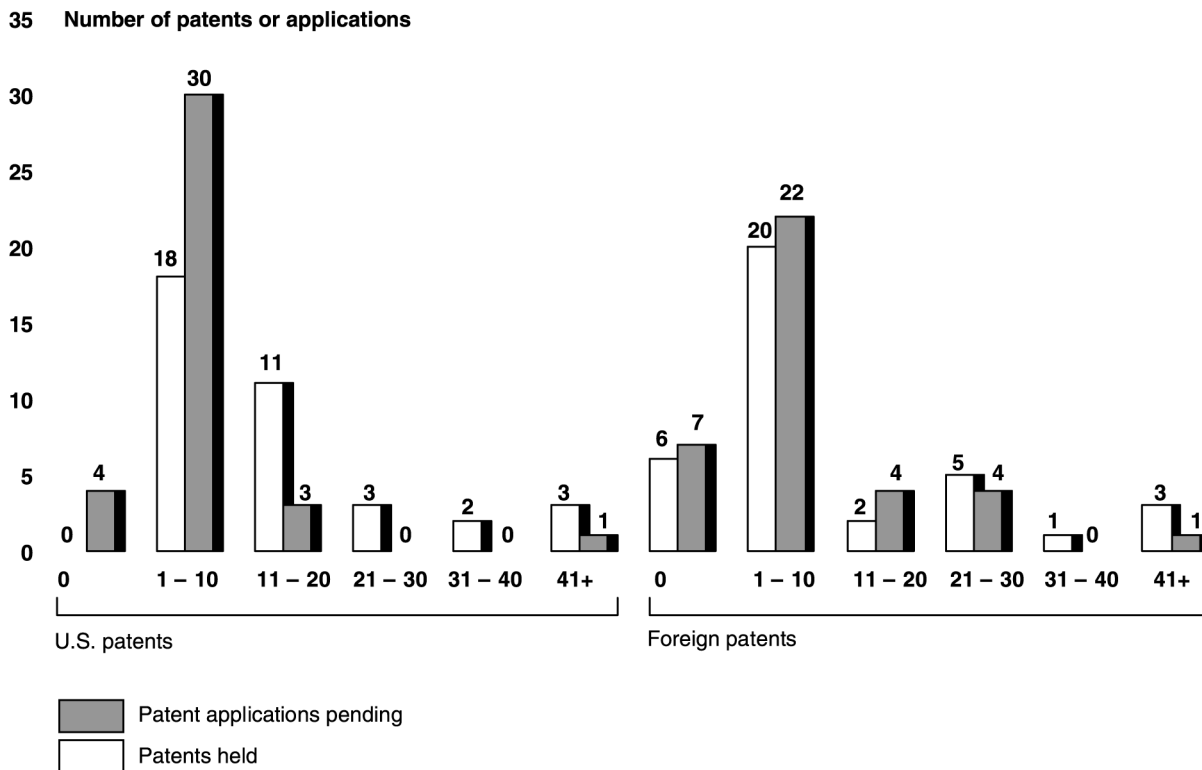


Source: GAO analysis of small business surveys.

Patent Behavior of Businesses Surveyed

The businesses that we surveyed held a range of U.S. and foreign patents. About three-fourths held 20 or fewer U.S. patents, and about 60 percent held 20 or fewer foreign patents. Nearly 90 percent of the businesses had pending U.S. patent applications, while about 80 percent had pending foreign patent applications. See figure 14.

Figure 14: Number of U.S. and Foreign Patents Held and Pending among the Small Businesses That GAO Surveyed



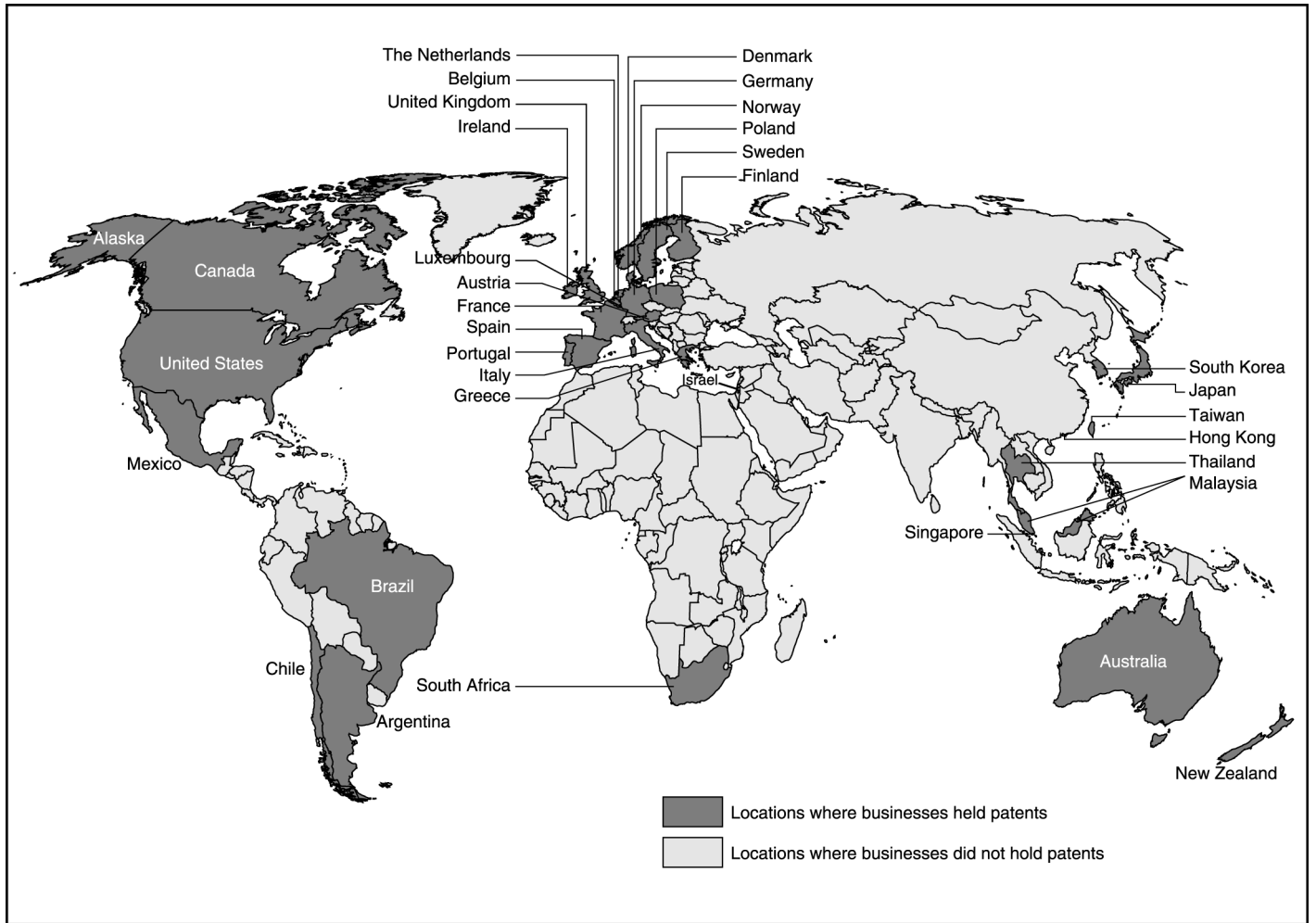
Note: Some of the 38 survey respondents did not provide information on the number of U.S. and foreign patents held and pending.

Source: GAO analysis of small business surveys.

The businesses that held foreign patents had obtained patent coverage in 33 countries or locations outside the United States, as shown in figure 15.

Appendix II
Information about the Small Business Survey
Population

Figure 15: Foreign Countries or Locations in Which Small Businesses That GAO Surveyed Held Patents



Source: GAO analysis of small business surveys.

Members of GAO's Patent Attorney Panel

Andrew C. Aitken, Partner, Venable, Baetjer, Howard & Civiletti, Washington, D.C.

Robert A. Armitage, Vice President and General Patent Counsel, Eli Lilly and Company, Indianapolis, Indiana

Charles Berman, Partner, Oppenheimer, Wolff & Donnelly, Los Angeles, California

Robert P. Blackburn, Vice President and Chief Patent Counsel, Chiron Corporation, Emeryville, California

Margaret A. Boulware, Shareholder, Jenkins & Gilchrist, Houston, Texas

Michael J. Buchenhorner, Esq., PA, Palo Alto, California

Jay L. Chaskin, Of Counsel, Cantor Colburn LLP, Norwalk, CT; Retired International Patent Counsel, General Electric Company, Fairfield, Connecticut

Todd Dickinson, Partner, Howrey Simon Arnold & White, Washington, D.C.

Mary Ann Dillahunty, Partner, Burns, Doane, Swecker & Mathis LLP, Redwood Shores, California

James A. Forstner, Esq., Private Consultant, Arlington, Virginia

Kathleen Fowler, Senior Patent Counsel, Immunex Corporation, Seattle, Washington

J. William Frank, III, Partner, McCracken and Frank, Chicago, Illinois

Gary L. Griswold, Chief Intellectual Property Counsel, 3M; President, 3M Innovative Properties Company, St. Paul, Minnesota

Samson Helfgott, Director of Patents, Katten Muchin Zavis Rosenman, New York, New York

Max D. Hensley, Vice President of Intellectual Property, Gilead Sciences, Inc., Foster City, California

Appendix III
Members of GAO's Patent Attorney Panel

David W. Hill, Partner, Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P., Washington, D.C.

John H. Hornickel, Chief Intellectual Property Counsel, Bridgestone/Firestone Americas Holding, Inc., Akron, Ohio

Alan J. Kasper, Partner, Sughrue Mion, P.L.L.C., Washington, D.C.

Irwin M. Kritzman, Vice President for Patent Administration, Thomson Multimedia Licensing Inc., Princeton, New Jersey

Maria C.H. Lin, Partner, Morgan & Finnegan, L.L.P., New York, New York

Nancy J. Linck, Senior Vice President, General Counsel, and Secretary, Guilford Pharmaceuticals Inc., Baltimore, Maryland

Doug Luftman, Corporate Counsel, CIENA Corporation, Cupertino, California

Gregory J. Maier, Senior Partner, Oblon, Spivak, McClelland, Maier & Neustadt, P.C., Arlington, Virginia

Michael Meller, Partner, Anderson Kill & Olick, P.C., New York, New York

Ann M. Muetting, Muetting, Raasch & Gebhardt, Minneapolis, Minnesota

Stephen L. Noe, Assistant General Patent Counsel – Europe, Caterpillar Inc., Peterborough, England

Michael J. Pantuliano, Counsel, Clifford Chance Rogers & Wells LLP, New York, New York

John B. Pegram, Principal, Fish & Richardson P.C., New York, New York

John H. Pilarski, Group Technology Counsel, Illinois Tool Works, Glenview, Illinois

Peter W. Roberts, Founding Member, Roberts, Mlotkowski & Hobbes, P.C., Fairfax, Virginia

Bernard F. Rose, Ph.D., Partner, Lyon & Lyon, LLP, San Jose, California

Appendix III
Members of GAO's Patent Attorney Panel

John M. Sanders, Sughrue Mion, P.L.L.C., San Diego, California

Victor Siber, Partner, Clifford Chance Rogers & Wells LLP, New York, New York

Liza K. Toth, Vice President for Intellectual Property, Matrix Semiconductor, Inc., Santa Clara, California

Ann S. Viksnins, Esq., Shareholder, Schwegman, Lundberg, Woessner & Kluth, P.A., Minneapolis, Minnesota

Michael Walker, Associate General Counsel, Intellectual Property, E.I. du Pont de Nemours and Company, Wilmington, Delaware

Harold C. Wegner, Partner, Foley and Lardner, Washington, D.C.

Elizabeth C. Weimar, Esq., Of Counsel, Morgan, Lewis & Bockius LLP, Washington, D.C.

Daniel N. Yannuzzi, Vice President, Chief Intellectual Property Counsel, Conexant Systems, Inc., Newport Beach, California

Results of the Patent Attorney Panel Surveys

This appendix presents the results from the expert panel of patent attorneys. Included here are the questions and results from the three questionnaires that were completed by members of the panel selected for this study (referred to as “phase I,” “phase II,” and “phase III”). We administered the questionnaires for phase I and II over the Internet; we administered phase III via E-mail.

Phase I

Phase I consisted entirely of open-ended questions on several related themes. The questions addressed

1. factors businesses should consider in deciding whether to seek, obtain, and maintain foreign patent protection;
2. impediments businesses face in seeking, obtaining, and maintaining foreign patent protection;
3. differences between large and small businesses in seeking, obtaining, and maintaining foreign patent protection;
4. missteps small businesses typically make in seeking, obtaining, and maintaining foreign patent protection;
5. amount of foreign patent protection that small businesses hold;
6. suggestions for small businesses seeking foreign patent protection; and
7. potential public assistance options to help small businesses overcome impediments to foreign patenting challenges.

Phase II

We analyzed the responses to questions 2, 3, 5, 6, and 7 above and used them as a foundation to develop the phase II questionnaire. We also analyzed questions 1 and 4 but chose not to pursue these themes in phase II. Phase II consisted of several series of closed-ended questions on items related to the themes. In phase II, panelists rated these items on various dimensions (for example, importance, usefulness, feasibility) depending upon the theme. As part of the analysis, we calculated various descriptive statistics on the responses to the phase II questionnaire. We report on these statistics in this appendix.

Impediments Businesses
Face in Seeking, Obtaining,
and Maintaining Foreign
Patent Protection (question
2 in phase I)

In the phase I questionnaire, we asked each member of the patent attorney panel to “[p]lease identify and briefly describe the impediments that businesses²⁰ face in seeking, obtaining, and maintaining foreign patent protection.” We compiled a list of the impediments that the attorneys identified and categorized them within six main groups. We then presented the list of impediments to the patent attorneys in phase II and asked them to rate the extent to which the impediments prevent small businesses from receiving foreign patent protection. The ratings were made on a five-point scale ranging from “to little or no extent” to “to a very great extent” (panelists were also given the option of responding “don’t know/no opinion”). Within the main categories of impediments, subcategory impediments were also presented. For example, within the first main category of “differences among patent systems,” subcategory items included “differences in laws, requirements, and standards for patenting between countries,” “differences in patenting procedures between countries,” “differences in the level of patent protection afforded by national patent offices,” and so on.

We calculated basic descriptive statistics on the impediments rated in the phase II questionnaire. These statistics included the mean (average), median, and standard deviation as well as the frequency distribution (that is, the percentages in each rating category), as shown in table 4. The main categories are numbered 1 through 6. Subcategory items are numbered 1.1, 1.2, 1.3, and so on.

²⁰For this question, we did not make a distinction between large and small businesses, intending instead to initially obtain the broadest possible perspective about impediments that all businesses face. We asked the patent attorney panel to make distinctions between small and large businesses in phase I, and we made further queries about this distinction in phase II.

Appendix IV
Results of the Patent Attorney Panel Surveys

Table 4: Descriptive Statistics on Impediments That Businesses Face in Seeking Foreign Patent Protection

No.	Factor	Rating								(9) Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) To little or no extent (%)	(5) To some extent (%)	(6) To a moderate extent (%)	(7) To a great extent (%)	(8) To a very great extent (%)	
Main category										
1	Differences among patent systems (e.g., differing laws, lack of harmonization)	3.39	3	1.2	6%	22%	25%	22%	25%	36
2	Company-specific impediments (e.g., management skill level, foreign patenting knowledge, resources)	3.50	4	1.0	0	19	28	36	17	36
3	Country-specific impediments (e.g., level of patent protection and enforcement, language and cultural barriers)	3.64	4	1.1	3	14	22	39	22	36
4	USPTO-related impediments (e.g., lack of foreign patenting assistance, quality of USPTO work and services)	1.86	1	1.1	51	23	17	6	3	35
5	Limited availability of foreign patenting advice (e.g., limited number of U.S. and foreign patent attorneys/agents with extensive foreign patent expertise)	2.75	3	1.4	25	17	31	14	14	36
6	Costs associated with foreign patenting	4.61	5	0.6	0	0	3	33	64	33
Subcategory										
1	Differences among patent systems									
1.1	Differences in the laws, requirements, and standards for patenting between countries (e.g., first-to-invent vs. first-to-file, absolute novelty)	3.25	3	1.2	8	19	31	22	19	36

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(Continued From Previous Page)

No.	Factor	Rating								(9) Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) To little or no extent (%)	(5) To some extent (%)	(6) To a moderate extent (%)	(7) To a great extent (%)	(8) To a very great extent (%)	
1.2	Differences in the patenting procedures between countries (e.g., when patent maintenance fees are paid, when applications should be filed)	2.60	3	1.1	17	29	37	11	6	35
1.3	Differences in the level of patent protection afforded by national patent offices (e.g., claims coverage, what is patentable)	3.27	3	1.0	0	28	31	28	14	36
1.4	Differences in the languages used in patent process/required translations	3.72	4	1.3	8	11	17	28	36	36
1.5	Level of patent harmonization (e.g., lack of commonly accepted or global patent search and examination, lack of commonly accepted regional or global patent, and lack of regional or global patent enforcement)	3.61	4	1.2	6	11	25	33	25	36
2	Company-specific impediments									
2.1	Insufficient resources allocable to foreign patents (e.g., limited ability to pay for foreign patenting costs and experienced legal representation)	4.39	4.5	0.7	0	0	11	39	50	36
2.2	Limited knowledge about overseas patenting (e.g., information about international patent protection, foreign patent systems, filing options and strategies, patent maintenance and enforcement, and patent costs and cost-saving measures).	3.75	4	0.9	0	6	36	36	22	36
2.3	Limited use of marketing and cost/benefit analyses	3.46	4	1.1	3	20	23	37	17	35

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(Continued From Previous Page)

No.	Factor	Rating								(9) Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) To little or no extent (%)	(5) To some extent (%)	(6) To a moderate extent (%)	(7) To a great extent (%)	(8) To a very great extent (%)	
2.4	Limitations on patent asset management capabilities (e.g., sophistication of patenting and patent management techniques, ability to leverage and manage resources for patenting, experience in certain countries, long-term considerations about patent portfolio, assessments of patent value in certain countries)	3.64	4	1.0	0	11	36	31	22	36
2.5	Inappropriate timing of patenting decisions (e.g., whether or not company has filed for/obtained the U.S. patent, has begun process early enough/missed deadlines, or has disclosed invention prior to filing patent application)	3.44	3	1.1	3	17	33	28	19	36
2.6	Life cycle of product/invention relative to patent processing times or patent term	2.78	3	0.8	3	36	44	14	3	36
2.7	Fear of technology being stolen or infringed upon (e.g., subject matter prone to design-arounds, fear of patent application being a template for infringement)	2.61	3	0.9	11	33	42	11	3	36
2.8	Limited overseas presence (e.g., level of business experience in certain countries, ability to detect infringement overseas)	3.4	3.5	1.0	0	22	28	33	17	36

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(Continued From Previous Page)

No.	Factor	Rating								(9) Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) To little or no extent (%)	(5) To some extent (%)	(6) To a moderate extent (%)	(7) To a great extent (%)	(8) To a very great extent (%)	
3	Country-specific impediments									
3.1	Nature of national patent systems (e.g., nature of country's intellectual property laws, strength and competency of national patent office)	3.36	3	0.9	0	17	42	31	11	36
3.2	Nature of legal infrastructure (e.g. nature of overall legal infrastructure, sophistication of judges, extent to which system allows discovery/duo process/traditional appeals)	3.51	4	1.2	3	23	20	29	26	35
3.3	Nature of patent protection available (e.g., difficulty and uncertainty obtaining a patent; lack of, inadequate, or narrow patent protection; statutory exclusions of certain subject matter/claims; and short patent term)	3.19	3	1.0	0	25	42	22	11	36
3.4	Barriers to filing and prosecuting patent (e.g., lack of a grace period; regulatory burdens associated with filing, such as apostille, notarization, legalization; long processing times or delays in establishing rights; and country not a member of the PCT)	3.31	3	1.1	6	14	39	28	14	36
3.5	Poor quality or difficult patent examinations (e.g., lack of substantive or effective examinations, uniquely stringent examination practices, and poorly trained examiners)	2.69	3	1.0	8	39	31	19	3	36
3.6	Inadequate or difficult patent enforcement (e.g., nonexistent, ineffective, or unpredictable enforcement)	3.91	4	0.9	0	9	20	43	29	35

Appendix IV
Results of the Patent Attorney Panel Surveys

(Continued From Previous Page)

No.	Factor	Rating								(9) Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) To little or no extent (%)	(5) To some extent (%)	(6) To a moderate extent (%)	(7) To a great extent (%)	(8) To a very great extent (%)	
3.7	Market and business climate (e.g., market difficult to access or predict, government restricts product marketing, prevalence of corruption or protectionism, lack of transparency)	3.33	3	1.2	8	14	31	31	17	36
3.8	Country-specific characteristics (e.g., monetary conversion/ payment differences, time zone differences)	2.06	2	1.1	36	36	17	8	3	36
3.9	Cultural differences (e.g., language barriers and need for translations)	3.40	4	1.3	6	26	14	31	23	35
3.10	Negative bias against foreign patentees	2.20	2	1.1	26	46	14	11	3	35
4	USPTO-specific impediments									
4.1	Lack of foreign patenting assistance/information from USPTO (e.g., lack of assistance with the PCT process provided by USPTO, lack of information/poor quality information provided by USPTO on foreign patent systems and foreign filing)	2.11	2	1.2	37	34	14	9	6	35
4.2	Quality of work provided by USPTO (e.g., timeliness and quality of work that may be of value to other patent offices)	2.11	2	1.3	42	31	11	8	8	36
4.3	Insufficient resources at USPTO (e.g., number of staff, level of funds)	2.42	2	1.3	28	36	14	11	11	36
5	Limited availability of foreign patenting advice									
5.1	Limited availability of experienced and knowledgeable U.S. patent attorneys (i.e., attorneys that know about and are able to advise on foreign patenting)	2.67	3	1.1	17	28	33	17	6	36

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(Continued From Previous Page)

No.	Factor	Rating								(9) Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) To little or no extent (%)	(5) To some extent (%)	(6) To a moderate extent (%)	(7) To a great extent (%)	(8) To a very great extent (%)	
5.2	Limited availability of experienced or knowledgeable foreign patent attorneys/agents	2.06	2	1.1	3.9	31	17	14	0	36
6	Costs associated with foreign patenting									
6.1	Costs related to obtaining foreign patents (e.g., patent search expenses, national stage filing fees, PCT fees, U.S. and foreign attorney fees, patent agent fees, translation costs, etc.)	4.51	5	0.8	0	3	9	23	66	35
6.1a	Patent search expenses (private)	2.16	2	1.0	31	31	28	9	0	32
6.1b	National stage filing fees (official fees for a particular country)	3.47	3	1.1	3	18	32	24	24	34
6.1c	PCT fees (official fees)	2.71	3	1.0	9	37	31	20	3	35
6.1d	Prosecution fees (official fees for a particular country)	3.46	3	1.0	3	14	34	31	17	35
6.1e	U.S. attorney fees (i.e., for legal services rendered, consultations, opinions, preparing and processing documents, responding to office actions, etc.)	3.26	3	0.9	0	20	43	29	9	35
6.1f	Foreign attorney/patent agent fees (i.e., for legal services rendered, consultations, opinions, preparing and processing documents, responding to office actions, etc.)	3.69	4	1.1	3	9	34	26	29	35
6.1g	Translation costs	4.57	5	0.8	0	6	0	26	69	35
6.2	Costs related to maintaining foreign patents (e.g., maintenance fees, U.S. and foreign attorney fees, patent agent fees, etc.)	3.97	4	1.1	0	12	21	26	41	34
6.2a	Maintenance fees through the life of the patent (official fees)	3.71	4	1.1	3	11	29	26	31	35

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(Continued From Previous Page)

No.	Factor	Rating								(9) Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) To little or no extent (%)	(5) To some extent (%)	(6) To a moderate extent (%)	(7) To a great extent (%)	(8) To a very great extent (%)	
6.2b	U.S. attorney fees (i.e., for legal services rendered, consultations, opinions, preparing and processing documents, etc.)	2.54	2	1.2	20	31	31	9	9	35
6.2c	Foreign attorney/patent agent fees (i.e., for legal services rendered, consultations, opinions, preparing and processing documents, etc.)	2.91	3	1.34	17	23	29	14	17	35
6.3	Costs related to enforcing foreign patents (e.g., U.S. and foreign attorney fees, patent agent fees, other enforcement costs, etc.)	3.91	4	1.2	0	18	18	21	44	34
6.3a	U.S. attorney fees (i.e., for legal services rendered, consultations, opinions, preparing and processing documents, etc.)	3.03	3	1.3	6	39	21	12	21	33
6.3b	Foreign attorney/patent agent fees (i.e., for legal services rendered, consultations, opinions, preparing and processing documents, etc.)	3.64	4	1.1	3	15	24	30	27	33
6.3c	Translation fees	3.61	4	1.3	6	16	19	26	32	31
6.3d	Official fees and other costs	2.97	3	1.0	6	25	41	22	6	32
6.4	Total foreign patenting costs (i.e., for obtaining, maintaining, and enforcing foreign patents)	4.46	5	0.8	0	3	11	23	63	35

Legend

PCT = Patent Cooperation Treaty
USPTO = U.S. Patent and Trademark Office

Note: Percentages may not add to 100 due to rounding.

Source: GAO analysis of patent attorney panel questionnaires.

Differences Between Large and Small Businesses in Seeking, Obtaining, and Maintaining Foreign Patent Protection (question 3 in phase I)

In phase I, we asked panelists: “[Do] the impediments you identified differ between small and large businesses?” After analyzing those responses, we followed up in phase II with the following series of questions. (For ease of presentation, this portion of the questionnaire is reproduced in figure 16. “N” indicates the number of patent attorneys answering the question. Responses are presented as a percentage of those that answered the question.)

Figure 16: Patent Attorney Responses to Questions 11 and 12 of Phase II

11. Which of the following best characterizes the differences between small and large businesses regarding the impediments to obtaining foreign patent protection? (check only one answer) N=36

- 25% Small businesses generally face different impediments than large businesses (GO TO QUESTION 13)
- 11% Small businesses generally face the same impediments as large businesses and are affected in the same way (GO TO QUESTION 13)
- 58% Small businesses generally face the same impediments as large businesses but are affected differently (GO TO QUESTION 12)
- 0% Other (Please specify) _____ (GO TO QUESTION 13) .
- 6% No basis to judge / no opinion (GO TO QUESTION 13)

12. Given that you believe the effect of the impediments faced by large and small businesses is different, are small businesses affected more negatively or more positively by these impediments? (check only one answer) N=21

- 67% Small businesses are affected much more negatively
- 33% Small businesses are affected somewhat more negatively
- 0% Small businesses are affected somewhat more positively
- 0% Small businesses are affected much more positively
- 0% No basis to judge / no opinion

Source: GAO analysis of patent attorney panel questionnaires.

**Amount of Foreign Patent
Protection Small Businesses
Hold (question 5 in phase I)**

In phase I, we asked panelists: “[D]o you believe that small businesses are generally seeking, obtaining, and maintaining an amount of foreign patent protection that is appropriate for their business needs and plans?” After analyzing the narrative responses to that question, we followed up with the following series of questions. (For ease of presentation, this portion of the questionnaire is reproduced in figure 17. “N” indicates the number of patent attorneys answering the question. Responses are presented as a percentage of those that answered the question.)

Figure 17: Patent Attorney Responses to Questions 13, 14, and 15 of Phase II

13. In phase I of this study, we asked whether panelists believe that small businesses are generally receiving foreign patent protection appropriate for their business needs and plans. In general, which of the following statements do you think best describes the degree of foreign patent protection small businesses currently hold?

(check only one answer) N=36

- 6% Most small businesses hold more foreign patents than they need
- 6% Most small businesses hold about the right amount of foreign patents
- 53% Most small businesses hold fewer foreign patents than they need
- 17% There is no clear pattern to the degree of foreign patent protection small businesses have
- 6% Other (please specify) _____.
- 14% Don't know / No basis to judge

14. After considering whether or not to obtain foreign patents, small businesses may ultimately decide not to seek foreign patent protection. In these cases, generally speaking, why do you think small businesses do not seek foreign patent protection?

(check only one answer) N=36

- 14% They have no need to obtain or interest in obtaining foreign patents (GO TO QUESTION 15)
- 72% The impediments are too difficult to overcome (GO TO QUESTION 16).
- 14% Other (please specify) _____.

15. If you responded that those small businesses that decide not to seek foreign patent protection do so because they have no need or interest, what is the predominant reason why they do not have a need for or interest in patenting outside the United States?

(check only one answer) N=5

- 40% Because the U.S. provides a sufficient market for their invention/product/technology
- 0% Because the nature of their invention/product/technology does not lend itself to foreign patent protection
- 0% Because there is no foreign market for their product
- 20% Other (please specify) _____.
- 40% No basis to judge / Don't know

Source: GAO analysis of patent attorney panel questionnaires.

**Suggestions for Small
Businesses Seeking Foreign
Patent Protection**

In phase I, we asked panelists: “What could small businesses do better as they consider whether or not to seek, obtain, and maintain foreign patent protection?” Table 5 presents a consolidated list of the suggestions that the panelists offered. In phase II, we presented this list and asked the attorneys: “How important are each of the following suggestions for small businesses to consider?” Response options ranged from “least important” to “most important” (see columns (4) through (8)), in addition to a “don’t know/no opinion” option. The items are presented in rank order by the mean rating (column (1)). We calculated basic descriptive statistics on the patent attorneys’ ratings for each suggestion.

**Appendix IV
Results of the Patent Attorney Panel Surveys**

Table 5: Descriptive Statistics on Suggestions for Small Businesses to Consider When Seeking, Obtaining, and Maintaining Foreign Patent Protection

No.	Suggestions for small businesses seeking foreign patent protection	Rating								Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) Least important (%)	(5) Somewhat important (%)	(6) Moderately important (%)	(7) Important (%)	(8) Most important (%)	
1	Avoid divulging information about the invention prior to filing a U.S. application	4.83	5	0.4	0%	0%	0%	17%	83%	36
2	Be familiar with key dates and deadlines that are specified under U.S., foreign, and international law, and take foreign filing actions accordingly	4.58	5	0.7	0	3	3	28	67	36
3	Only file in countries where protection will be meaningful and patent will produce a return on investment	4.19	4.5	1.0	0	11	8	31	50	36
4	Consider the company's long-range business plan	4.14	4	0.8	0	6	8	53	33	36
5	Manage patent portfolio as an asset, and regularly review overseas portfolio	4.14	4	0.8	0	3	14	50	33	36
6	Become more knowledgeable about the total cost of seeking, obtaining, maintaining, and enforcing foreign patent protection	4.06	4	0.9	0	3	26	34	37	35
7	Consider the nature and patentability of the product	4.06	4	0.8	0	6	14	50	31	36

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(Continued From Previous Page)

No.	Suggestions for small businesses seeking foreign patent protection	Rating								(9) Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) Least important (%)	(5) Somewhat important (%)	(6) Moderately important (%)	(7) Important (%)	(8) Most important (%)	
8	Obtain experienced U.S. patent counsel that is familiar with foreign patenting	4.06	4	0.9	0	6	20	37	37	36
9	Realistically consider company's willingness and ability to enforce patents abroad	3.94	4	0.9	0	6	25	39	31	36
10	Obtain experienced foreign patent representation	3.94	4	1.1	0	14	17	31	39	36
11	Consider using PCT and other treaties	3.94	4	1.0	3	3	22	42	31	36
12	Do a thorough market analysis (i.e., company's interest in overseas markets, current and potential size of foreign markets, nature of competition, etc.)	3.86	4	0.8	0	6	22	53	19	36
13	Become more knowledgeable about foreign patent laws and practices and how they differ from U.S. patent laws and practices	3.78	4	0.9	0	6	33	39	22	36
14	Begin to consider foreign patenting options early, such as in the R&D phase, and seek legal advice at that time	3.75	4	1.1	3	17	6	53	22	36
15	Involve top company officials in patenting decisions	3.75	4	1.0	0	14	19	44	22	36
16	Estimate cradle-to-grave foreign patenting costs, and do a thorough cost/benefit analysis	3.61	4	1.2	3	19	19	31	28	36

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(Continued From Previous Page)

No.	Suggestions for small businesses seeking foreign patent protection	Rating								(9) Number of respondents
		(1) Mean	(2) Median	(3) Standard deviation	(4) Least important (%)	(5) Somewhat important (%)	(6) Moderately important (%)	(7) Important (%)	(8) Most important (%)	
17	Consider alternative ways of commercializing foreign patent (i.e., licensing, joint ventures, partner with other U.S. or foreign firms, etc.)	3.61	4	1.2	6	14	17	42	22	36
18	Consider strategic options in the development of foreign patent applications (i.e., file shorter applications, design applications to meet foreign requirements, modify claims, consider utility patents where available, etc.)	3.58	4	1.0	3	14	22	44	17	36
19	Seek training opportunities on foreign patent protection for any in-house counsel and other staff	3.39	3	1.2	3	25	25	25	22	36
20	Seek advice and partner with other businesses	2.91	3	1.1	12	24	29	32	3	34

Legend

PCT = Patent Cooperation Treaty
R&D = research and development

Note: Percentages may not add to 100 due to rounding.

Source: GAO analysis of patent attorney panel questionnaires.

Potential Federal Actions to
Help Small Businesses
Overcome Impediments to
Obtaining Foreign Patents
(question 7 in phase I)

In phase I, we asked the patent attorney panel: “[Do] you think any public assistance (e.g., grants, technical assistance, etc.) or legislation should be introduced to help small businesses overcome the foreign patenting challenges that you identified? If so, what should these be?” As with other themes discussed, some of the main categories here also contained related subcategory options. In phase II, we first asked panelists two close-ended questions about whether they believed public assistance measures were needed to address impediments that small businesses faced in seeking foreign patent protection. These two questions are presented below. (For ease of presentation, this portion of the questionnaire is reproduced in figure 18. “N” indicates the number of patent attorneys answering the question. Responses are presented as a percentage of those that answered the question.)

Figure 18: Patent Attorney Responses to Questions 17 and 18 of Phase II

17. Do you believe that public assistance measures are needed to address impediments faced by small businesses seeking foreign patent protection? Here "public assistance" is defined broadly and would include things such as grants, tax credits, technical assistance, etc.

(CHECK ONLY ONE ANSWER) N=36

- 44% No, I don't believe public assistance is needed (GO TO QUESTION 18)
- 42% Yes, I believe public assistance is needed (GO TO QUESTION 19)
- 14% Don't know / No basis to judge needed (GO TO QUESTION 19)

18. Why don't you believe that public assistance is needed to address impediments faced by small businesses seeking foreign patent protection?

(CHECK ALL THAT APPLY) N=16

- 25% Public assistance is not feasible
- 6% Public assistance already exists and is currently sufficient
- 44% Public assistance may compound the problems
- 69% Public assistance is not likely to address the impediments
- 25% The private sector effectively addresses the impediments
- 31% Problems are international in nature, jurisdictional issues are involved
- 6% Don't know / No basis to judge

Source: GAO analysis of patent attorney panel questionnaires.

Appendix IV
Results of the Patent Attorney Panel Surveys

After posing these questions, we then asked the patent attorney panel to rate a list of the public assistance options we developed based on their responses in phase I (presented in table 6). We asked them to rate the options on two dimensions: usefulness and feasibility. We calculated basic descriptive statistics on the patent attorneys' ratings for each dimension.

Appendix IV
Results of the Patent Attorney Panel Surveys

Table 6: Descriptive Statistics on Public Assistance Options to Help Small Businesses Overcome Impediments to Seeking, Obtaining, and Maintaining Foreign Patents

No.	Public assistance option		(1) Mean
1	Information and education for small businesses about foreign patenting	Useful	3.89
		Feasible	3.67
1a	Information explaining the business rationale and value of foreign patenting	Useful	4.11
		Feasible	3.66
1b	Information explaining patent value in certain countries	Useful	4.26
		Feasible	3.88
1c	Information describing foreign patent laws and differences in foreign patent systems	Useful	4.03
		Feasible	3.94
1d	Information describing foreign patenting strategies and filing options (e.g., when to file, what is patentable where, how best to file (PCT, national))	Useful	4.43
		Feasible	4.00
1e	Information explaining the impediments to foreign patenting	Useful	4.03
		Feasible	3.69
1f	Information describing the cost of foreign patenting	Useful	4.57
		Feasible	4.14
1g	Information explaining foreign patent enforcement	Useful	4.29
		Feasible	3.77
2	Financial assistance to small businesses for foreign patenting	Useful	3.06
		Feasible	2.31
2a	Financial assistance for the research and development of inventions	Useful	3.37
		Feasible	2.62
2b	Financial assistance for foreign patenting in general	Useful	3.11
		Feasible	2.26
2c	Financial assistance for the cost of obtaining foreign patents	Useful	3.26
		Feasible	2.35

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(2) Median	(3) Standard deviation	(4) Not useful or feasible (%)	(5) Least useful or feasible (%)	(6) Moderately useful or feasible (%)	(7) Mostly useful or feasible (%)	(8) Extremely useful or feasible (%)	(9) Number of respondents
4	1.1	0%	14%	19%	31%	36%	36
4	1.2	6	11	22	33	28	36
4	0.9	0	9	11	40	40	35
4	1.1	6	11	9	60	14	35
4	0.9	0	9	3	43	46	35
4	1.1	6	6	9	53	26	34
4	1.0	0	11	14	34	40	35
4	1.0	0	14	11	40	34	35
5	0.7	0	3	6	37	54	35
4	1.1	6	6	11	37	40	35
4	0.9	0	3	31	26	40	35
4	1.1	6	9	17	49	20	35
5	0.8	0	3	9	17	71	35
4	1.0	3	6	11	34	46	35
5	0.9	0	3	17	29	51	35
4	1.1	6	3	29	34	29	35
3	1.4	20	17	14	34	14	35
2	1.3	31	34	14	11	9	35
3	1.2	6	20	26	29	20	35
2.5	1.2	18	32	26	18	6	35
3	1.2	11	23	20	34	11	35
2	1.1	26	41	18	9	6	34
4	1.3	12	21	15	35	18	34
2	1.2	26	35	24	6	9	34

Appendix IV
Results of the Patent Attorney Panel Surveys

No.	Public assistance option		(1) Mean
2d	Financial assistance for the cost of enforcing foreign patents	Useful	3.00
		Feasible	1.91
3	Technical assistance to small business for foreign patenting (i.e., assistance with issues surrounding obtaining, maintaining, and enforcing patents)	Useful	3.29
		Feasible	2.79
4	Legal assistance to small business for foreign patenting (i.e., legal assistance with obtaining, maintaining, and enforcing patents)	Useful	3.34
		Feasible	2.51
5	Better funding of USPTO to increase quality of work and assistance provided to small businesses for foreign patenting	Useful	3.14
		Feasible	2.85
6	Information and education for legislators about the impediments small businesses face in foreign patenting	Useful	3.66
		Feasible	3.38
7	Information and education for legislators about the need for patent harmonization	Useful	4.24
		Feasible	3.91
8	Legislation to promote international patent cost reduction	Useful	4.28
		Feasible	3.06
9	Legislation and other government activity to promote international patent harmonization	Useful	4.47
		Feasible	3.53
9a	U.S. government activity to increase international patent cooperation (e.g., increasing cooperation among Trilateral Offices, creating regional and commonly accepted patents, and reducing translation costs)	Useful	4.64
		Feasible	4.17
9b	U.S. government activity to promote harmonization in Europe (i.e., promoting the creation of common patent, patent law, and patent court in Europe)	Useful	4.44
		Feasible	3.53

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(2) Median	(3) Standard deviation	(4) Not useful or feasible (%)	(5) Least useful or feasible (%)	(6) Moderately useful or feasible (%)	(7) Mostly useful or feasible (%)	(8) Extremely useful or feasible (%)	(9) Number of respondents
3	1.3	18	21	18	32	12	34
2	1.1	47	29	12	9	3	34
3	1.1	0	31	26	26	17	35
3	1.1	9	38	24	24	6	34
3	1.2	9	14	34	20	23	35
2	1.2	20	40	20	9	11	35
3	1.5	14	28	17	14	28	36
2	1.5	18	35	15	9	24	34
4	1.1	3	11	29	31	26	35
3	1.1	3	21	29	29	18	34
5	1.0	0	9	12	26	53	34
4	1.1	3	9	16	38	34	32
4.5	0.9	3	3	8	36	50	36
3	1.3	14	23	20	29	14	35
5	0.8	0	6	6	25	64	36
4	1.1	0	22	25	31	22	36
5	0.7	0	3	6	17	75	36
4	0.9	0	8	11	36	44	36
5	0.8	0	6	6	28	61	36
4	1.3	11	14	14	33	28	36

Appendix IV
Results of the Patent Attorney Panel Surveys

No.	Public assistance option		(1) Mean
9c	U.S. government activity to promote creation of uniform standard, laws, and requirements across countries (e.g., globalizing or eliminating (where applicable) grace periods, patent forfeiture bars, prior art, and translation requirements; and harmonizing patent-eligible subject matter)	Useful	4.69
		Feasible	3.78
9d	U.S. government activity to promote creation of global patent	Useful	4.14
		Feasible	2.77

**Appendix IV
Results of the Patent Attorney Panel Surveys**

(2) Median	(3) Standard deviation	(4) Not useful or feasible (%)	(5) Least useful or feasible (%)	(6) Moderately useful or feasible (%)	(7) Mostly useful or feasible (%)	(8) Extremely useful or feasible (%)	(9) Number of respondents
5	0.6	0	3	0	22	75	36
4	1.3	6	17	8	33	36	36
4	1.1	3	9	6	37	46	35
2	1.6	31	20	9	20	20	35

Legend

PCT = Patent Cooperation Treaty
USPTO = U.S. Patent and Trademark Office

Note: Percentages may not add to 100 due to rounding.

Source: GAO analysis of patent attorney panel questionnaires.

Phase III

In Phase II, the patent attorney panel was split on the need for public assistance measures to help small businesses overcome impediments and, on average, ranked financial assistance as the least useful option for addressing impediments. In phase III, we developed a series of questions to better understand the patent attorneys' views on whether federal financial assistance would be a useful or feasible way to help small businesses address cost-related impediments to foreign patents.

We sent an E-mail questionnaire consisting of four questions to each member of the patent attorney panel. Thirty-two attorneys (82 percent of the 39 panelists) responded to our questions. Their answers are summarized in figure 19. ("N" indicates the number of attorneys answering the question. We present responses as a percentage of those that answered the question.)

Figure 19: Patent Attorney Responses to the Four Questions in Phase III

- (1) Generally speaking, do you believe that financial assistance could be a useful option for addressing cost-related foreign patenting impediments for small businesses? Please place an x before the response that most closely reflects your own views. (N=32)
- a. 44% Yes, financial assistance could be a useful option for addressing cost-related impediments.
 - b. 47% No, financial assistance would not be a useful option for addressing cost-related impediments.
 - c. 9% Don't know/no basis to judge.
- (2) Generally speaking, do you believe that financial assistance could be a feasible option for addressing cost-related foreign patenting impediments for small businesses? Please place an x before the response that most closely reflects your own views. (N=30)
- a. 17% Yes, financial assistance could be a feasible option for addressing cost-related impediments.
 - b. 70% No, financial assistance would not be a feasible option for addressing cost-related impediments.
 - c. 13% Don't know/no basis to judge.

- (3) If you answered no to either Q1 or Q2, please place an x before those responses that most closely reflect your own views: (N=25)

I believe that:

- a. 36% Financial assistance is not as likely as other public assistance options to achieve congressional support.
- b. 48% Financial assistance would not likely be significant enough to help small businesses overcome their cost-related impediments.
- c. 24% Financial assistance would not be delivered in a timely enough manner to be useful for the foreign patenting process.
- d. 48% Financial assistance provided to small businesses for foreign patenting would not be an appropriate/efficient use of government funds.
- e. 92% Financial assistance is only an indirect solution to a larger problem. I support international patent cost reduction/harmonization over financial assistance to small businesses for foreign patenting.
- f. 0% Other _____
- g. 0% Don't know/no basis to judge

Note: Percentages for this question will not add up to 100 because respondents can check multiple responses.

- (4) "If financial or other public assistance is not available from the government, how, if at all, can small businesses address the cost-related impediments they face?" (**open ended responses not reproduced here**)

Source: GAO analysis of patent attorney panel questionnaires.

Results of the Small Business Survey

Small Business Foreign Patenting Survey



Thank you for agreeing to participate in GAO's small business foreign patenting study. Your answers are very valuable to us.

At the beginning of each section below, you will find general information and instructions for completing the survey. If you have any questions regarding this survey, please contact Shirley Brothwell, (202) 512-3865, or Jody Woods, (202) 512-3738. The information you provide will be confidential. We will only use your responses in aggregate form. If possible, please complete the survey and fax it back to Jody Woods at (202) 512-9088 by January 4, 2002. After we receive your completed survey, we may contact you with some additional questions.

I) Company Information - Please confirm the responses your company provided, and supply additional information where requested. Write in any changes or responses.

1) Company information.

Contact Name(s)	
Position(s)	
Company Name	
Address	
Phone	
Fax	
Web Address	
Number of employees	Average: 170, Median: 60, Range: 1-1500

2) Number of issued U.S. patents that your company currently holds:

3) Number of U.S. patent applications pending:

4) Number of issued foreign patents that your company currently holds:

The results of questions 2-5 are in appendix II, figure 14.

5) Number of foreign patent applications pending:

6) Countries in which foreign patents are held: **European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom), Argentina, Australia, Brazil, Canada, Chile, Hong Kong, Israel, Japan, Malaysia, Mexico, New Zealand, Norway, Poland, Singapore, South Africa, South Korea, Taiwan, Thailand**

7) Of the following five options, would you say that your company's overall foreign patenting strategy is to:

- A. 34% Patent only in one or a few select countries
- B. 8% Patent in multiple countries in one region
- C. 37% Patent in multiple countries in a region and in one or more additional countries
- D. 13% Patent in multiple regions
- E. 8% Patent virtually worldwide

**Appendix V
Results of the Small Business Survey**

**Small Business
Foreign Patenting Survey**



II) Factors to Consider in Patenting Abroad - Please check the boxes that apply.

8) Based on your company's overall foreign patenting experiences, to what extent does your company typically consider the following types of factors when making decisions about foreign patent protection?

Factor	Extent scale					N
	Little to none (%)	Some (%)	Moderate (%)	Great (%)	Very great (%)	
8.1) Costs associated with foreign patenting	5%	3%	27%	32%	32%	37
8.2) Benefits associated with foreign patenting	0	8	19	44	28	36
8.3) Location and size of possible foreign markets	0	3	11	41	46	37
8.4) Location of your company's or your competitors' possible manufacturing/assembly/R&D sites	16	16	16	22	30	37
8.5) Foreign legal systems and regulatory environments	8	24	29	26	13	38
8.6) Foreign patent systems and patent laws	8	24	22	27	19	37
8.7) Foreign patent enforcement/infringement	3	19	19	38	22	37
8.8) The nature of the technology/invention/product	5	5	27	27	35	37
8.9) The attributes and scope of the patent and the claims	8	11	22	32	27	37
8.10) The composition of your company's patent portfolio and any related business strategies	16	5	24	35	19	37
8.11) The composition of your competition's patent portfolio and any related business strategies	35	19	19	11	16	37
8.12) Patent timing and deadlines	27	16	24	22	11	37
8.13) Cultural and demographic factors in other countries	34	29	11	20	6	35
8.14) Other:	0	0	0	0	0	0
8.15) Other:	0	0	0	0	0	0

Legend
N = Number of responses

Note: Percents were calculated by removing any "Don't Know/Not Applicable" responses from the total number of responses ("N"). Percents in this appendix may not correspond to those listed in the body of the report due to rounding.

Small Business Foreign Patenting Survey



III) Impediments to Patenting Abroad - Please check the boxes that apply.

9) Based on your company's overall foreign patenting experiences, to what extent does your company regard the following items as impediments to foreign patent protection? (We define "impediment" as anything that prevents, limits, or discourages your company from obtaining foreign patent protection.)

Impediment	Extent scale					N
	Little to none (%)	Some (%)	Moderate (%)	Great (%)	Very great (%)	
9.1) Differences among patent systems						
9.11) Differences in the laws, requirements, and standards for patenting between countries	14%	14%	46%	14%	14%	37
9.12) Differences in the patenting procedures between countries	14	25	39	11	11	36
9.13) Differences in the level of patent protection afforded by national patent offices	8	16	32	24	19	37
9.14) Differences in the languages used in patent process/need for translations	26	26	17	14	17	35
9.15) Lack of harmonization in patent search, examination, issuance, and enforcement	11	26	34	11	17	35
9.2) Factors related to the company						
9.21) Amount of resources allocable to foreign patents	8	0	22	33	36	36
9.22) Company's overall knowledge about foreign patenting	25	19	25	19	11	36
9.23) Company's use of marketing and cost/benefit analyses	26	23	29	14	9	35
9.24) Company's patent asset management capabilities	41	15	29	9	6	34
9.25) Timing of company's patenting decisions	36	14	25	19	6	36
9.26) Life-cycle of product/invention relative to patent processing times or patent term	23	20	29	20	9	35
9.27) Fear of technology being stolen or infringed upon	17	14	14	31	23	35
9.28) Limited overseas presence	14	8	31	42	6	36
9.3) Factors related to specific countries						
9.31) Nature of national patent systems	9	18	45	21	6	33
9.32) Nature of legal infrastructure	9	21	39	24	6	33
9.33) Nature of patent protection available	6	20	29	37	9	35
9.34) Patent filing and prosecution burdens, such as regulatory requirements or processing delays	6	23	40	23	9	35
9.35) Poor quality or difficult patent examination	18	24	35	12	12	34
9.36) Inadequate or difficult patent enforcement	9	15	30	27	18	33
9.37) Market and business climate	3	9	26	46	17	35

**Small Business
Foreign Patenting Survey**



Impediment	Extent scale					N
	Little to none (%)	Some (%)	Moderate (%)	Great (%)	Very great (%)	
9.3) Factors related to specific countries (cont.)						
9.38) Currency and time zone differences	76%	16%	5%	3%	0%	38
9.39) Cultural and language differences	29	39	21	3	8	38
9.310) Negative bias against foreign patentees	44	28	19	9	0	32
9.4) Factors related to the U.S. Patent and Trademark Office (U.S. PTO)						
9.41) Lack of foreign patenting assistance/information from USPTO	47	21	9	18	6	34
9.42) Quality and timeliness of USPTO work that other patent offices use	47	19	13	9	13	32
9.43) Insufficient staff and funding resources at USPTO	48	16	10	13	13	31
9.5) Limited availability of foreign patenting advice						
9.51) Limited availability of experienced and knowledgeable U.S. patent attorneys	58	26	5	11	0	38
9.52) Limited availability of experienced or knowledgeable foreign patent attorneys/agents	56	25	6	14	0	36
9.6) Costs associated with foreign patenting						
9.61) Costs related to <u>obtaining</u> foreign patents	0	3	8	39	50	38
9.62) Costs related to <u>maintaining</u> foreign patents	3	5	16	38	38	37
9.63) Costs related to <u>enforcing</u> foreign patents	6	11	11	23	49	35
9.64) Total foreign patenting costs	3	3	8	34	53	38
9.7) Other:	0	0	0	0	0	0
9.8) Other:	0	0	0	0	0	0

Legend
N = Number of responses

Note: Percents were calculated by removing any “Don’t Know/Not Applicable” responses from the total number of responses (“N”). Percents in this appendix may not correspond to those listed in the body of the report due to rounding.

**Appendix V
Results of the Small Business Survey**

**Small Business
Foreign Patenting Survey**



IV) Assistance Options and Strategies – Please check the boxes that apply.

10) To what extent would the following public assistance options or strategies be helpful to your company's efforts to obtain foreign patent protection?

Option	Extent scale					N
	Little to none (%)	Some (%)	Moderate (%)	Great (%)	Very great (%)	
10.1) Information and education for small businesses about foreign patenting (i.e., information about foreign patent laws and systems; foreign patenting options and strategies)	18	18	24	21	18	38
10.2) Financial assistance to small businesses for foreign patenting (i.e., loans, grants, tax credits)	11	13	8	32	37	38
10.3) Technical assistance to small businesses for foreign patenting (i.e., assistance with issues surrounding obtaining and enforcing patents)	11	21	18	29	21	38
10.4) Legal assistance to small businesses for foreign patenting (i.e., legal assistance with obtaining and enforcing patents)	16	13	24	21	26	38
10.5) Better funding to USPTO to increase quality of work and assistance provided to small businesses for foreign patenting	11	28	22	17	22	36
10.6) Information and education for legislators about the impediments small businesses face in foreign patenting	11	20	29	11	29	35
10.7) Information and education for legislators about the need for international patent harmonization	9	9	29	23	31	35
10.8) Legislation or other government activity to promote international patent cost reduction	5	3	22	32	38	37
10.9) Legislation or other government activity to promote international patent harmonization	6	3	20	31	40	35
10.10) Other:	0	0	0	0	0	0
10.11) Other:	0	0	0	0	0	0

Legend
N = Number of responses

Note: Percents were calculated by removing any “Don’t Know/Not Applicable” responses from the total number of responses (“N”). Percents in this appendix may not correspond to those listed in the body of the report due to rounding.

Small Business Foreign Patenting Survey



V) Additional Information.

11) Please provide any comments you would like to share with us regarding your foreign patenting experiences.

We are paying a lot of money for foreign patents without having a clue about the protection it buys us. Almost unaffordable for small businesses. My opinion about the U.S. patent system is not much better. Costs extremely high.
Very expensive. Need specialized patent attorney firms to handle foreign applications. Time lag even worse than USPTO. Largely unenforceable anyway.
As a small company we use an independent patent law firm to write and file all U.S. and foreign patent applications. This patent law firm has a network of foreign patent associates in each country which files our patent applications. Therefore, we see little direct impact of differences between countries, but we do see the very high costs associated with filing and maintaining foreign patents.
Our foreign patent experience is good because we have an outside attorney who is responsible for coordinating and advising activities. The firm is knowledgeable and has established good associations with local foreign attorneys who help with local laws and issues.
Mexico is a pain. Corporate minutes and all kinds of proof of authorship is required-not worth it! Japan is also difficult. Very costly for small companies and/or individuals to properly protect themselves.
Patent decisions are cost and market driven - nothing else of consequence.
The costs do become a burden. We have had no experience yet with international license or infringement. Addressing these costs would be beneficial to us. A second concern is the publication of PCT pending applications-- that is detrimental to small businesses, but it appears the cat is out of the bag. Note-- If financial assistance is provided, tax credits would be of limited help as we and other start-ups often face these expenses before we are profitable. Consider having assistance available through SBIR (the Small Business Administration's Small Business Innovation Research program)-- e.g. a phase III commercialization grant on 1:1 match against company or other private sector payment of PCT filing fees and perhaps some legal fees, or low interest loans.
Don't know much about it, but what I do hear is that it is very expensive for a small consulting outfit like mine. My patents are mostly a marketing tool, and would be difficult to enforce against a deep-pocketed infringer. Foreign patents would be even more expensive to obtain, and impossible to enforce without millions for lawyers. So why bother.
Our answers to certain questions vary from country to country. We are unaware of any USPTO-provided assistance/information. Regarding federal assistance options, we need information and technical assistance. Otherwise, government should stay out of foreign patenting.
It is currently a confusing quagmire. I feel as if we are throwing money down the drain for no benefit. Is there really anything that will really protect a small company? We couldn't afford to enforce a foreign patent-- we'd drop it!
Our only real concern is the high costs of obtaining and maintaining foreign patents.
Not typically worth the cost.

Thank you for participating in this survey.

Processes and Costs Involved in Obtaining Foreign Patent Protection: A Hypothetical Scenario

Companies may obtain foreign patent protection in several ways. The costs associated with obtaining such protection vary depending on the process followed, the nature of the patent sought, and the extent of global patent coverage desired. This appendix presents a hypothetical scenario that we developed for a small business seeking to patent a single invention abroad. Our goal was to illustrate a common foreign patent process and to estimate the costs that a small U.S. business²¹ might incur when filing for, obtaining, and maintaining foreign patent protection in the United States and nine other countries. We based this hypothetical scenario, in part, on what several patent attorneys advised us could be considered a “typical” small business patent application and process.

Our scenario depicts a small company filing for foreign patent protection for one of its products in six European countries (France, Germany, Italy, Ireland, Sweden, and the United Kingdom), Canada, Japan, and South Korea. Patent laws in each of the nine countries cover the technology for this product, which can be protected with a single patent. The hypothetical company has already filed its U.S. application for this product. The U.S. patent application on which the company will base its foreign applications was relatively short and straightforward, consisting of 25 pages, 5 drawings, and 15 claims (claims define the invention and are what make the patent legally enforceable). Patents will ultimately be issued in each country where the company is pursuing protection. In order to keep its patents in force, the company must pay recurring fees (referred to as “maintenance fees”) to each national patent office. In our scenario, the company opts to keep each patent in force for its full term, which is 20 years from the date of patent application filing. (Additional information about our scenario and methodology can be found at the end of this appendix.)

Given this scenario, the estimated cost of the U.S. patent, maintained for a period of 20 years, is about \$10,000 (in current year dollars).²² The

²¹Under 13 C.F.R. part 121, the Small Business Administration (SBA) has established various size standards, based on economic activity or industry, for determining what a small business is for purposes of eligibility for SBA programs. Based on SBA standards, we defined a small business for purposes of conducting our work as having 500 or fewer employees.

²²These estimates are expressed in current year dollars because of a lack of information about the timing and amount of future expenditures for patent maintenance and attorney fees. Additional information on our scope and methodology in developing these estimates can be found at the end of this appendix.

estimated cost of the foreign patents, maintained for a similar length of time, would range from about \$160,000 to about \$330,000 (in current year dollars). These are minimum estimates that include patent application filing and issuance fees, translation fees for applicable foreign patent offices, maintenance fees, and estimates of attorney and foreign patent agent fees associated with work related to the filing and paying of these fees. Actual patent costs for a patent filing strategy similar to our scenario could be far higher because we assumed that the patent application would not face a difficult examination process in any of the countries. Thus, our scenario eliminated many patent office and legal costs that companies incur in trying to obtain a patent. Actual patent costs would also vary if certain key assumptions were modified. For example, filing applications in more than nine countries would increase the cost of obtaining foreign protection. Also, if a patent application were longer or more complex than the one in our scenario, the cost to obtain patent protection abroad would rise because translation expenses and some foreign patent office charges would be higher. Conversely, if patent protection was not maintained for the full 20-year term in each of the countries, official fees and attorney fees to maintain the patent would decrease.²³ The latter condition would reduce the overall cost of foreign patent protection relative to the U.S. cost. Finally, these estimates do not include costs that could be incurred from legal fees payable for litigation associated with possible infringement and defense of a patent. We use a variety of terms in this appendix. See the glossary for definitions.

Estimated Cost of U.S. Patent

The scenario assumes that the small business has already filed its U.S. patent. As shown in table 7, the minimum cost to obtain that patent would be about \$6,412. This includes U.S. Patent and Trademark Office (USPTO) small entity filing and issuance fees, as well as attorney charges to prepare and file the patent application and obtain the issued patent. The minimum cost to maintain the patent for a 20-year term would be about \$3,528. This includes USPTO maintenance fees that are charged 3 times during the 20-year term after the patent is granted, as well as attorney charges to pay

²³U.S. patent maintenance costs are fully paid by the end of the twelfth year from the date the application was filed, whereas foreign patent maintenance costs continue to be incurred through the twentieth year from the date of application. Thus, holding foreign patents for shorter periods of time reduces the cost of foreign patent protection relative to the cost of U.S. protection.

**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**

those fees. In this scenario, 65 percent of the costs are incurred to obtain the patent and 35 percent to maintain it.

Table 7: Estimated Costs to Obtain and Maintain U.S. Patent for 20 Years

Type and stage of fee	Cost in U.S. dollars
Application	
USPTO basic filing fee	\$370
Attorney charges to prepare and file patent application	5,002
Issuance	
USPTO issue fee	\$640
Attorney charges	400
Total application and issuance costs	\$6,412
Maintenance	
USPTO fee at year 3.5	\$440
USPTO fee at year 7.5	1,010
USPTO fee at year 11.5	1,550
Attorney charges to pay 3 maintenance fees	528
Total maintenance costs	\$3,528
Total cost to obtain and maintain the patent	\$9,940

Note 1: All USPTO fees are small entity fees effective October 1, 2001.

Note 2: Attorney charges are based on the American Intellectual Property Law Association's *Report of Economic Survey 2001* and reflect the median charges for the subject item.

Source: GAO analysis of USPTO fees and American Intellectual Property Law Association data.

Filing for a Foreign Patent

A company can acquire foreign patent protection in two ways: (1) by filing separately in each country or region where protection is desired or (2) by filing for patent protection in 116 countries at the same time through an international application established by the 1970 Patent Cooperation Treaty (PCT), as amended.²⁴

Companies may file separately in each country where protection is desired under the rules established by the 1883 Paris Convention, as amended. Also known as the Convention for the Protection of Industrial Property, this treaty is adhered to by 163 countries and gives limited recognition to one

²⁴Much of the technical information presented in this appendix is drawn from Stephen Elias, ed., *Patent, Copyright, & Trademark: A Desk Reference to Intellectual Property Law* (Berkeley: Nolo Press, 1996).

Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario

another's country patent application filing dates. Applicants choosing this route must file foreign patent applications within 1 year of the date on which they filed their domestic patent application (known as the "priority date"). Applicants will face the requirements and costs that each country imposes upon filing their patent applications. As a result, filing separately may be cost-effective for those interested in holding patents in only a few countries.

The second process for foreign filing is through an international patent application under the Patent Cooperation Treaty (PCT), which the World Intellectual Property Organization (WIPO) in Geneva, Switzerland, administers. This treaty is adhered to by 115 countries and facilitates the international filing of patent applications by centralizing filing procedures and standardizing the application format. The PCT enables applicants to obtain an international search report or "prior art search"²⁵ and preliminary examination.²⁶ This is commonly called the "international stage" of a PCT application.²⁷ Following this stage, PCT applicants then decide in which countries they want to hold patents and enter processes in these countries to obtain such patents. This is commonly called the "national stage" of a PCT application. Applicants incur PCT fees during the international stage and national patent office fees during the national stage.²⁸ However, by filing through the PCT, applicants can delay paying the national stage fees for up to 30 months from their patent priority date.²⁹ This delay allows applicants more time to assess the value of their invention and the likelihood of obtaining a patent in a particular country before incurring the costs associated with obtaining patent protection in that country.

²⁵Prior art is the body of information, including patent and nonpatent literature, that patent offices consult to determine the patentability of an invention.

²⁶An examination is a process in which a patent examiner will correspond with applicants and decide whether inventions deserve patents based on claims.

²⁷The expression "international phase" or "stage" is not officially used in the PCT, but according to WIPO, it has become customary and is used in its Patent Cooperation Treaty guide (<http://www.wipo.int/pct/guide/en/>).

²⁸The expression "national phase" or "stage" is not officially used in the PCT, but according to WIPO, it has become customary and is used in WIPO's PCT guide (<http://www.wipo.int/pct/guide/en/>).

²⁹Most patent offices, including those in our scenario, provide for a delay of 30 months. However, some will allow a 31-month delay from the priority date.

If an applicant desires patent protection in a region such as Europe, Eurasia, or Africa, the applicant may file with a regional patent office or, if filing through the PCT, designate a regional office. The European Patent Convention and the Eurasian Patent Convention are examples of regional patent treaties that allow applicants to file one single application for the contracting states within those regions. For instance, the European Patent Convention and its associated office, the European Patent Office, consist of 24 member states.³⁰

Obtaining a Foreign Patent Using PCT

In our scenario, the company uses the Patent Cooperation Treaty process for filing its foreign patents. We chose to illustrate the PCT process because it is a widely used and “typical” method for obtaining foreign patent protection, according to patent attorneys we interviewed. The PCT process consists of two main phases, the international stage and the national stage.

International Stage: PCT Processes and Costs

The international stage of the PCT process is comprised of several steps, as shown in figure 20. First, applicants file a PCT application and pay associated filing fees to a PCT receiving office, as shown in box 1 of figure 20. The receiving office, which is a contracting state, is the authority to which nationals or residents of that state submit their international applications.³¹ Second, applicants select an International Searching Authority³² to prepare an international search report that will provide information on relevant prior art based on the claims of the application.³³ The International Searching Authority conducts a prior art search and

³⁰The European Patent Convention member states include Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Liechtenstein, Luxembourg, Monaco, the Netherlands, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

³¹Applicants may also file with the International Bureau of WIPO regardless of the state of which the applicant is a resident or national. Residents or nationals who are party to regional patent conventions may file international applications with the regional offices that the conventions established.

³²An International Searching Authority is a national office or intergovernmental organization that is highly experienced in examining patent applications and is specified by the receiving office. The International Searching Authority establishes documentary search reports on prior art with respect to inventions that are the subject of applications.

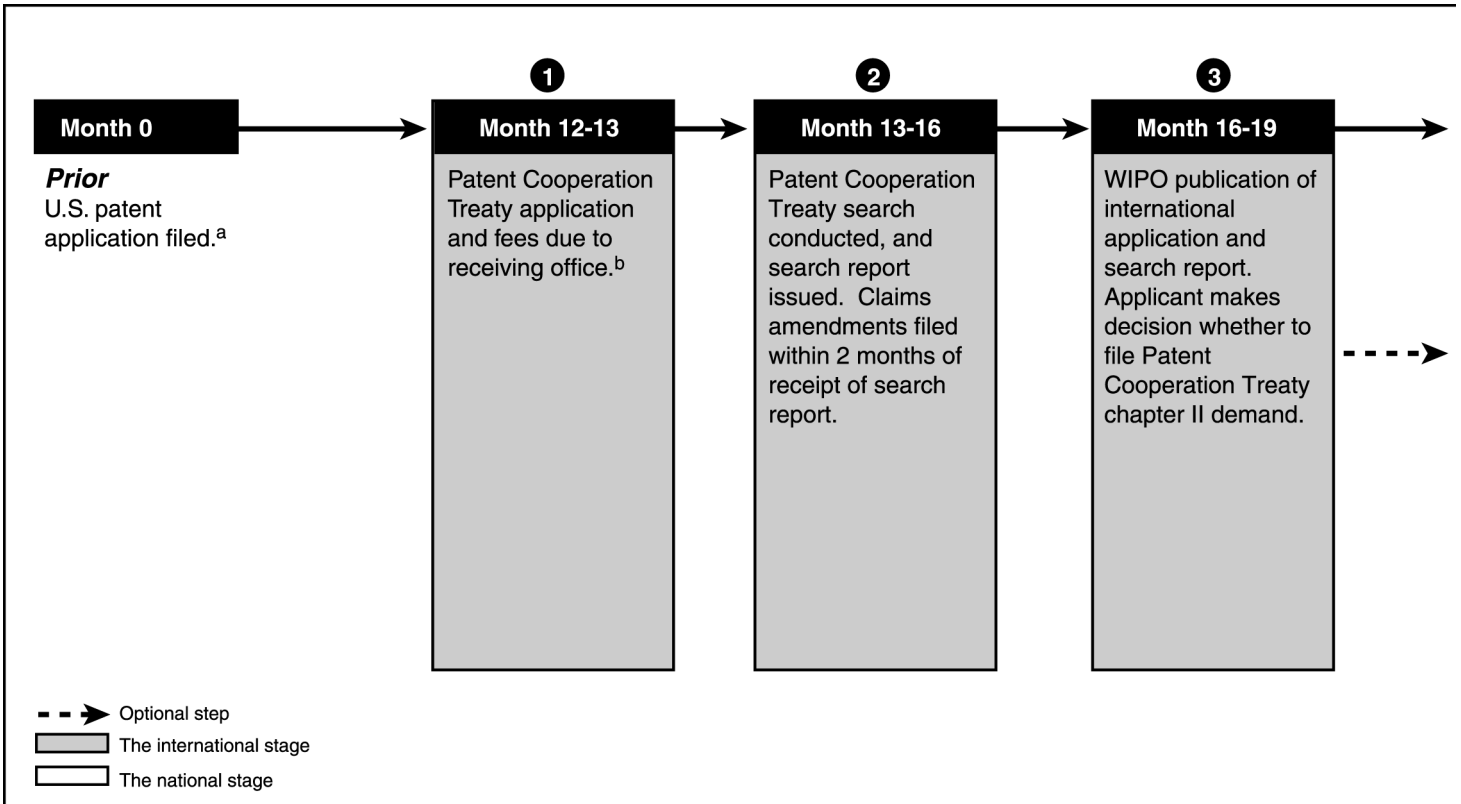
³³See The World Intellectual Property Organization, Patent Cooperation Treaty: chapter 1, article 15 (Geneva: WIPO, <http://www.wipo.int/pct/en/index.html>, downloaded in May 2002).

**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**

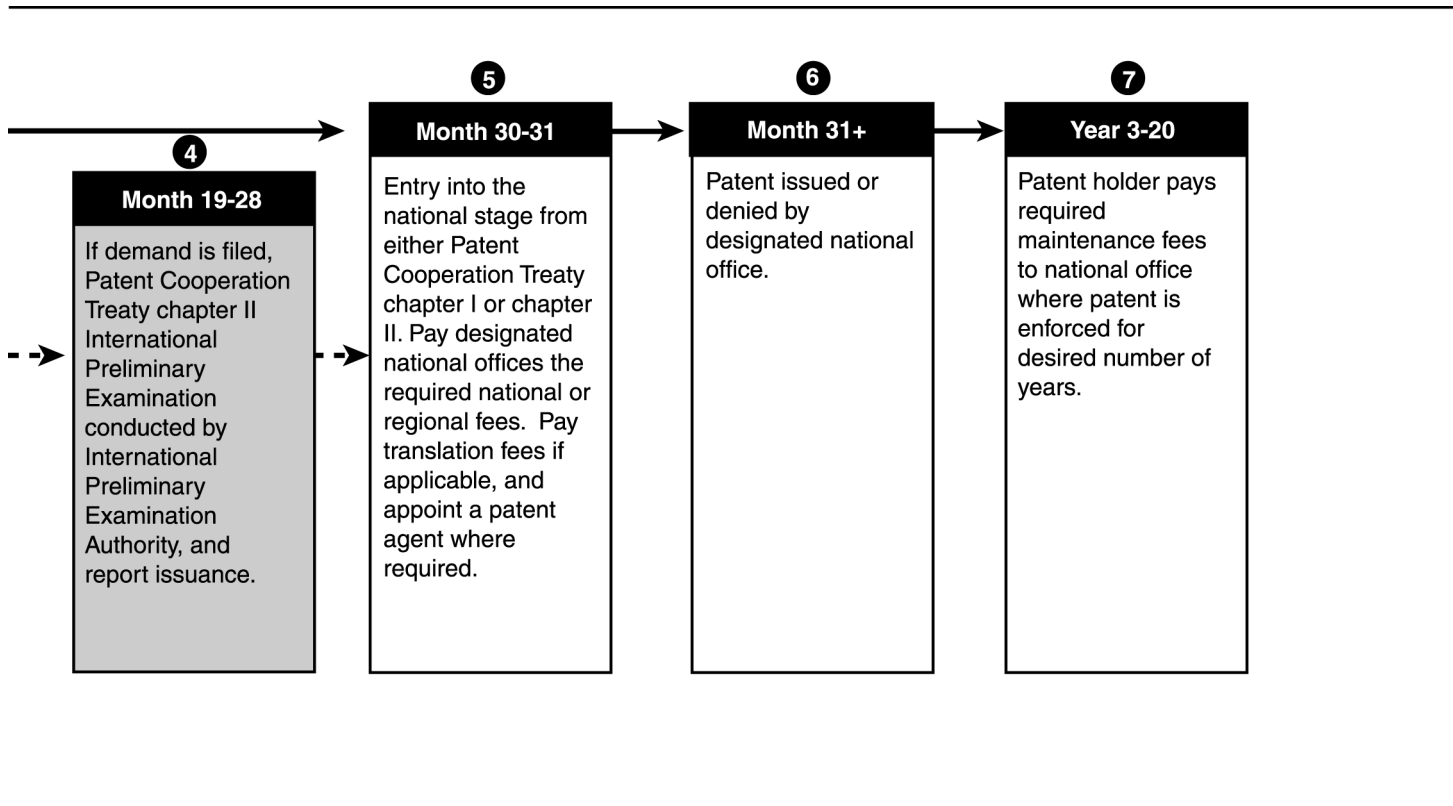
issues a search report for the applicant's review, as shown in box 2 of figure 20. Based on the results of the report, the applicant may decide to continue or discontinue the patent process in certain countries. Discontinuing the patent process because of an unfavorable search report allows the applicant to save on the costs of processing the application in various countries. However, the applicant may amend the claims of his or her application and maintain only those that are favorable and likely to result in the grant of a patent.

**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**

Figure 20: The International and National Stages of the PCT Process



**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**



^a This figure illustrates the process and timetable in cases where an applicant has first filed a U.S. patent application. However, applicants may file their initial application under the PCT. In these cases, the steps would be the same, but the timetable would differ.

^b The PCT application is due at month 12, and the fees are due at month 13.

Source: GAO analysis.

Once WIPO publishes the international application, as shown in box 3 of figure 20, the applicant has the option of obtaining an international preliminary examination report.³⁴ The preliminary report provides an initial and nonbinding opinion about whether the claimed invention appears to be

³⁴The international preliminary examination report is produced by an International Preliminary Examination Authority, which is appointed in the same fashion as the International Searching Authority.

novel, nonobvious, and industrially applicable.³⁵ If the applicant decides not to obtain this preliminary report, the applicant will enter the national stage of the patent process. If the applicant decides to obtain an international preliminary examination report, he or she must file a “PCT chapter II demand.” The issuance of the international preliminary examination report, as shown in box 4 of figure 20, allows the applicant to assess the chances of obtaining a patent in a particular country before incurring the costs associated with pursuing patent protection in that country.

The costs associated with the international stage include fees payable to the receiving office for work related to filing the international application, obtaining the international search report, and designating the national patent offices where applicants may decide to file during the national stage. Applicants will also incur U.S. patent attorney fees for filing and any applicable work corresponding to the PCT process. We will address these costs in the final section of this appendix. The receiving office sets the transmittal fee. This fee is payable for the tasks associated with the receipt and checking of the international application. The fee also covers the transmittal of application copies to WIPO and the International Searching Authority. The International Searching Authority sets and receives the search fees for establishing the international search report. The international fee accrues to WIPO and is the sum of the basic fee and the designation fees. The basic fee is for tasks that include the publication of the international application and the communication of notifications to the applicant, the receiving office, the International Searching Authority, the International Preliminary Examination Authority, and national and/or regional offices. The designation fee is payable for the first five national or regional offices designated in the application. There is no charge for designations beyond five.

Our scenario assumes that the United States operates as the receiving office, as well as the International Searching Authority and the International Preliminary Examination Authority, for the hypothetical company’s patent application. Table 8 shows the fees associated with the international stage of the foreign filing process through the PCT. The company would pay four designation fees: one each for Canada, Japan, South Korea, and the European Patent Office. In our scenario, the company

³⁵See The World Intellectual Property Organization, Patent Cooperation Treaty: chapter 2, article 33 (Geneva: WIPO, <http://www.wipo.int/pct/en/index.html>, downloaded in May 2002).

**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**

chooses to pursue national stage entry after chapter II processing. This means that the business will incur the additional costs of having preliminary examination conducted by an International Preliminary Examination Authority to further assess the chances of obtaining a patent for its invention in the desired countries or regions. The additional costs include two fees payable to the International Preliminary Examination Authority. The first of these is a preliminary examination fee that accrues to the International Preliminary Examination Authority for carrying out and establishing the international preliminary examination report. The second is a handling fee that accrues to WIPO for carrying out various tasks related to the international preliminary examination report. The estimated total cost of the international stage, given this scenario, is \$2,100.

Table 8: Estimated International Stage Patent Costs

Type of fee	Cost in U.S. dollars
PCT chapter I fees	
Transmittal fee ^a	\$240
Search fee ^b	450
International fees (basic fee and designation fees)	
Basic fee	407
Designation fee (\$88x4)	352
Certified copy fee	15
Total PCT chapter I fees	\$1,464
PCT chapter II fees	
Preliminary examination fee ^c	\$490
Handling fee	146
Total PCT chapter II fees	\$636
Total international stage fees (PCT chapter I and chapter II fees)	\$2,100

Note: U.S. and foreign patent attorney fees not included.

^aUSPTO is the receiving office.

^bUSPTO is the International Searching Authority.

^cUSPTO is the International Preliminary Examination Authority.

Source: USPTO fee schedule.

National Stage: National Patent Office Processes and Costs

The national stage is the second of the two main phases of the PCT patent procedure. For official entry into the national stage, the applicant will be responsible for paying the required fees to each national or regional patent office elected,³⁶ along with the fees associated with furnishing a translation of the international application where applicable, as shown in box 5 of figure 20. The applicant may also be required to appoint a patent attorney or agent in each of the designated offices. (A patent agent is a nonattorney with technical training who is legally permitted to draft, file, and prosecute patent applications on behalf of inventors.) Such appointment may be required if the applicant is a nonresident of the designated office's respective country. The deadlines for these requirements are generally by month 30 after the priority date, but some PCT contracting states may extend this deadline to month 31. Once these steps are completed, the company will officially enter the national stage via chapter I or chapter II.³⁷ Next, the designated offices will carry out an examination of the application and either issue or deny the national or regional patent based on their respective national laws, as shown in box 6 of figure 20.

The costs associated with the national stage include official fees payable to each designated office for filing the patent application, examining the application, and granting the patent. The applicant may also incur fees for the translation of the patent application. In addition, the applicant will incur costs for any work involving a U.S. patent attorney or a foreign patent attorney or agent (hereafter referred to as "foreign representatives"). We will address these costs in the final section of this appendix.

Our scenario assumes that the company will be pursuing patents through three national offices—Canada, Japan, and South Korea. The company is also pursuing patents in six European Patent Office member states—France, Germany, Ireland, Italy, Sweden, and the United Kingdom. Table 9 shows the fees associated with the national stage of the foreign filing process through PCT. Official fees include the filing fee, state designation fees in the case of the European Patent Office, examination fees, and

³⁶The PCT defines a national or regional office as "designated" in chapter I and "elected" in chapter II.

³⁷Effective April 1, 2002, the entry date for chapter I was changed from 20 months to 30 months from the priority date pursuant to PCT Article 22. Officials from USPTO noted that many contracting countries of PCT have indicated that the change is incompatible with their current national laws. Therefore, they will not recognize the change until their respective national laws have been changed.

**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**

patent granting fees. The company will incur translation fees for Japan, South Korea, and the non-English speaking countries designated in the European Patent Office; namely, France, Germany, Italy, and Sweden. The total estimated cost of the fees associated with the national stage, given our scenario, is \$13,417. This does not include costs associated with either U.S. attorney or foreign representative work.

Table 9: Estimated National Stage Patent Costs

National or regional patent office	Official fees	Translation fees^a	Total (cost in U.S. dollars)
Canada	\$314	\$0	\$314
EPO	3,237	1,739	4,976
Japan	1,699	2,999	4,698
South Korea	1,229	2,200	3,429
Total	\$6,479	\$6,938	\$13,417

Legend

EPO = European Patent Office

Note: Exchange rates used by Global IP Estimator software: British pounds = 0.6876 to the U.S. \$; Euro = 1.1193 to the U.S. \$; German marks = 2.1893 to the U.S. \$; Japanese yen = 131.71 to the U.S. \$; Canadian dollar = 1.5913 to the U.S. \$; Korean won = 1,317.8 to the U.S. \$.

^a Translation fees vary according to the length of the application. Our estimate assumes 25 pages of translation.

Source: Global IP Estimator (software package that provides cost estimates of international patent applications). (Kihei, HI:Global I.P. Net, 2002).

Maintaining a Foreign Patent

Maintenance fees, also referred to as “annuities” or “renewal fees,” are paid to each patent office where a patent has been obtained. Maintenance fees would be applicable if the business decided to keep a patent granted to it in force, regardless of how the company filed. Maintenance fees keep the patent in effect and must be paid on a recurring basis, usually annually for up to 20 years after the priority date, as shown in box 7 of figure 20. Patent holders can expect an annual increase in fees charged by each national patent office for maintaining the patent. If a business decides not to maintain any of its patents and therefore not enforce them for a full term, the maintenance fees for each patent would cease from the last year during which the patent was kept in force.

Our scenario assumes that the company seeks to keep the patent it obtained through the PCT process in force in each of the nine countries for

Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario

a term of 20 years from the priority date.³⁸ Table 10 provides the total maintenance fees over 20 years that would be payable to the patent offices in our scenario, not including attorney fees. The fees would be payable to Japan, Canada, South Korea, and each country that the company designated through the European Patent Office. The total estimated cost to the business for full-term foreign maintenance is \$83,543. This does not include costs associated with either U.S. attorney or foreign representative work.

³⁸We assumed that the patents would be held for the full 20-year term in each country to show what the maximum maintenance costs might be. However, most patents are not held for the full term.

**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**

Table 10: Estimated Costs Involved in Maintaining a Foreign Patent in Nine Countries for 20 Years

Country	Cost in U.S. dollars
Canada	\$1,510
France	5,001
Germany	13,520
Ireland	4,637
Italy	6,002
Japan	22,783
South Korea	18,910
Sweden	5,552
United Kingdom	4,903
EPO renewal fees	725
Total	\$83,543

Legend

EPO = European Patent Office

Note 1: Exchange rates are based on data from DRI-WEFA, *World Outlook Comparison Tables, Forecast Data, 2001*, fourth quarter, and DRI-WEFA, *Monthly World Outlook* (Philadelphia:DRI-WEFA, Feb. 15, 2002). Exchange rates are based on an average exchange rate forecast for years 2001-2005 and years 2006-2020.

Note 2: Maintenance fees are expressed in current year dollars because of a lack of information about the timing and amount of future expenditures for patent maintenance.

Note 3: Renewal fees are payable to the European Patent Office for the years before the European Patent Office grants the patent. In our scenario, we assume the European Patent Office grants the patent in year 5. As a result, the company must pay a renewal fee of \$351 in year 3 and \$374 in year 4 to the European Patent Office. The figure for European Patent Office renewal fees in the table reflects fees for years 3 and 4 and the maintenance fees for designated member states for years 5-20.

Sources: Canadian Intellectual Property Office, European Patent Office, German Patent and Trademark Office, Irish Patents Office, Italian Patent and Trademark Office, Japanese Patent Office, Korean Intellectual Property Office, United Kingdom Patent Office, and WIPO.

U.S. Attorney and Foreign Representative Fees

Throughout the foreign patent process, the company will incur fees for U.S. attorneys and foreign patent representatives. Unlike national patent office fees, which governments typically publish in fee schedules, U.S. attorney and foreign representative costs may vary widely, depending on a number of factors. Therefore, they are difficult to estimate reliably. For example, items such as the nature of the patent sought, the extent of global patent coverage desired, the foreign patent process followed, and the amount of time patent attorneys spend modifying patent applications to meet the expectations of individual patent offices will affect the cost of U.S. patent

**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**

attorney and foreign representative services. U.S. patent attorney fees will also vary throughout the United States. For these reasons, our estimates of U.S. patent attorney and foreign representative costs are, at best, approximate.

We presented our foreign patent scenario to, and obtained cost estimates from, four of the patent attorneys on our panel.³⁹ We asked them to estimate the U.S. attorney and foreign representative fees that the hypothetical company might incur at the international and national stages and throughout the maintenance phase. Their estimates for the U.S. attorney and foreign representative charges during the international and national stages were similar, but their estimates of these costs during the maintenance phase covered a broader range. As shown in table 11, the total cost of U.S. attorney and foreign representative fees for the company could range from under \$60,000 to \$230,000.

Table 11: Estimated U.S. Attorney and Foreign Representative Fees

	International stage	National stage	Maintenance phase	Total (cost in U.S. dollars)
U.S. attorney fees	<\$10,000 - \$20,000	<\$10,000- \$30,000	<\$10,000- \$60,000	<\$30,000- \$110,000
Foreign representative fees	0	\$20,000- \$50,000	\$10,000- \$70,000	\$30,000- \$120,000
Total fees	<\$10,000- \$20,000	<\$30,000- \$80,000	<\$20,000- \$130,000	<\$60,000- \$230,000

Source: GAO analysis of patent attorney cost estimates.

Total Scenario Costs

The total estimated foreign patent costs to the company in our scenario ranged from about \$160,000 to about \$330,000, as shown in table 12. In this scenario, the company would incur about 35 percent of the lifetime costs to file and obtain the foreign patents and about 65 percent of the costs to maintain the foreign patents for their full 20-year term.

³⁹These attorneys were based in San Jose, Calif.; Washington, D.C.; Minneapolis, Minn.; and New York City.

**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**

Table 12: Estimated Total Foreign Patent Costs

Stage	Cost in U.S. dollars
International stage costs	\$2,100
U.S. attorney and foreign representative fees at the international stage	<10,000-20,000
National stage costs	13,417
U.S. attorney and foreign representative fees at the national stage	<30,000-80,000
Maintenance fees	83,543
U.S. attorney and foreign representative fees during the maintenance stage	<20,000-130,000
Total	<\$159,060-\$329,060

Source: GAO analysis.

Scope and Methodology

To estimate the U.S. patent costs that a small business might incur, we obtained relevant fees from the USPTO schedule of patent fees, effective October 1, 2001. We used the small entity fees because the company in our scenario would be eligible to pay these lower fees. We obtained estimates for attorney costs from the American Intellectual Property Law Association's *Report of Economic Survey 2001*. This survey is done every 2 years and, among other things, provides statistics on billing rates and typical charge for representative intellectual property services. The data in the 2001 report is based on 1,829 responses. We used the median costs contained in the survey for actions that corresponded to our scenario.

To estimate the foreign patent costs that a small business might incur, we developed our hypothetical foreign patent scenario based on information that we obtained from our small business survey and patent attorney panel, as well as on input from several patent attorneys. We took this route because few of the studies that we analyzed about foreign patent costs were tailored to small businesses. Moreover, because many caveats exist in the foreign patent process, a scenario enabled us to better estimate costs. Based on this information and input, we developed what the patent attorneys advised was a reasonably typical foreign patent scenario for a small business. This scenario included filing a patent application of average length and complexity in a limited number of important countries, reflecting the choices that small businesses have to make because of cost considerations. We also chose to illustrate the PCT process because it is a commonly used process that small businesses might follow.

**Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario**

The scenario included a range of assumptions to help narrow the scope of cost estimates as much as possible, particularly for the patent attorneys who estimated U.S. and foreign patent attorney charges. These hypothetical foreign patent scenario assumptions are as follows:

1. The U.S. application consists of 25 pages, 5 drawings, and 15 claims, including 2 independent claims.
2. Prior art is relevant to the first independent claim and its dependent claims, but not to the other independent claim.
3. The first independent claim and its dependent claims are ultimately allowed after amendment.
4. One office action occurs.
5. No appeals, opposition, invalidation, scope trials, or the like occur.
6. The issued patent contains 15 claims.
7. The company keeps each of its patents in force for 20 years.
8. The PCT application is filed in the United States. USPTO acts as the receiving agent and conducts the search and examination.

We included the nine countries in our scenario for various reasons. We selected Japan because it is an important market, and because we wanted to illustrate the higher costs that companies face when they seek patent protection in Japan. We selected Canada because U.S. small businesses are eligible for lower fees there and can file their applications in English, thereby avoiding translation charges. We selected South Korea to represent developing markets where companies may wish to obtain patent protection. We opted to include six European countries to represent reasonable but still limited protection in this major foreign market.

We obtained information about the cost of filing a PCT application in the United States from the USPTO schedule of PCT fees. We used the Global IP Estimator software published by Global I.P. Net to obtain information on patent fees in each country included in our scenario. This software provides estimates of national patent office fees for countries throughout the world, including translation costs where applicable. We obtained information about these fees and costs from Global IP Estimator in January

Appendix VI
Processes and Costs Involved in Obtaining
Foreign Patent Protection: A Hypothetical
Scenario

2002. We validated the information in the Global IP Estimator by examining the WIPO's PCT applicant guides and published fees and the various national patent office Web sites. We obtained information about maintenance fees from WIPO, the European Patent Office, and the national patent office Web sites. Since many of these sources presented the fees in the national currency of the respective patent office, we used average exchange rates for years 2001-2005, and 2006-2020, provided by DRI-WEFA, an economic consulting firm.

To obtain information about the cost of U.S. and foreign patent attorney services throughout the process, we surveyed four patent attorneys who were members of our patent attorney panel. The attorneys estimated, within ranges of \$10,000, the U.S. patent attorney and foreign representative costs for the international and national stages and the maintenance phase of our scenario. Although the American Intellectual Property Law Association's *Report of Economic Survey 2001* contained data on U.S. patent attorney charges for these services, we did not use this data because it did not include foreign representative costs.

We have expressed all costs in current dollars due to a lack of information about the timing and amount of future expenditures for patent maintenance and attorney fees. We collected information on the patent maintenance fees for the United States and foreign countries for the patent scenario described in this appendix. However, we do not have a breakdown of the costs on an annual basis, which would enable us to convert this stream of payments into present value terms. Since a larger share of foreign patent costs in this scenario accrue in the later years as compared to the U.S. costs, a present value calculation will result in a greater percentage reduction in foreign costs than in U.S. costs. Nevertheless, foreign patent costs still remain substantially higher than U.S. costs.

We also shared our analysis with USPTO officials, who provided assistance and technical comments.

Comments from the U.S. Patent and Trademark Office

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



Under Secretary of Commerce For Intellectual Property and
Director of the United States Patent and Trademark Office
Washington, DC 20231
www.uspto.gov

JUL - 2 2002

Mr. Loren Yager
Director
International Affairs and Trade Issues
United States General Accounting Office
Washington, DC 20548

Dear Mr. Yager:

Thank you for forwarding the proposed draft General Accounting Office (GAO) Report entitled "INTERNATIONAL TRADE: Federal Action Needed to Help Small Businesses Address Foreign Patent Challenges (GAO-02-789), on June 19, 2002, for review by the United States Patent and Trademark Office (USPTO).

Enclosed are written comments from the USPTO regarding the proposed text. Most of the comments in the enclosed document were made to clarify aspects of patent law, either in the United States or of a more general nature. In addition, more general comments have been made, particularly with respect to the draft "Recommendation for Executive Action," as well as throughout the document, as appropriate.

The comments are quite detailed. Please direct any questions that you have regarding these comments to Mr. Jon Santamauro, Patent Attorney, Office of Legislative and International Affairs, at (703) 305-9300.

We share the view that small businesses are important to the United States economy and the USPTO views these businesses as an important user group. There are many examples of important inventions that have been patented by small businesses throughout the history of the United States, and I am sure that this will continue to be the case.

I look forward to our continued cooperation on this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Rogan".

JAMES E. ROGAN
Under Secretary and Director

See comment 1.

The following is GAO's comment on the U.S. Patent and Trademark Office's (USPTO) letter dated July 2, 2002.

GAO Comment

1. The enclosure to USPTO's letter mainly provided technical comments that were designed to clarify our discussion of U.S. and international patent laws. Therefore, we chose not to reproduce them in this appendix. In commenting on the first recommendation, USPTO suggested that we recommend that USPTO "continue to consider" the advantages and disadvantages of various options for further patent law harmonization. While we recognize that USPTO has obtained some input from small businesses or certain organizations that represent them about patent law harmonization, most of this input has been in the form of responses to *Federal Register* requests for comment from the public. We retained our recommendation as written because we believe that USPTO needs to be more active in obtaining input about harmonization from small businesses. USPTO's suggestions for the second recommendation indicated that it was not comfortable helping to develop original, specific information about foreign patent laws, requirements, procedures, and costs. We agreed with their concerns and modified the recommendation to direct the agencies to collect and make available existing information about foreign patents.

Comments from the Small Business Administration

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



U.S. SMALL BUSINESS ADMINISTRATION
WASHINGTON, D.C. 20416

Ms. Elizabeth Sirois
Assistant Director
International Affairs and Trade Issues
U.S. General Accounting Office
Washington, DC 20548

July 8, 2002

Dear Ms. Sirois:

Thank you for affording the U.S. Small Business Administration (SBA) the opportunity to review and comment on GAO's proposed report, *International Trade: Federal Action Needed to Help Small Businesses Address Foreign Patent Challenges* (GAO-02-789). We agree that it is often prohibitively costly for small businesses to obtain and enforce patent protection for their inventions in other countries. SBA believes that innovation is an important aspect of the economic growth prospects of small businesses and therefore welcomes this opportunity to comment on the issue of foreign patent protection for small businesses.

The SBA's Office of International Trade aids and assists small business to increase their ability to compete in international markets by enhancing their ability to export; facilitating technology transfers; enhancing their ability to compete effectively and efficiently against imports; increasing access of small businesses to long-term capital for the purchase of new plant and equipment used in the production of goods and services involved in international trade; disseminating information concerning State, Federal and private programs and initiatives to enhance the ability of small businesses to compete in international markets; and ensuring that the interests of small businesses are adequately represented in bilateral and multilateral trade negotiations.

SBA is continually developing educational tools, technical assistance programs, and trade finance products to make U.S. small businesses more competitive in the international arena. Providing information about foreign patent laws is consistent with SBA's mission to assist small businesses compete in international markets.

The proposed report recommends "that the Administrator of the Small Business Administration, with assistance from the Director of the Patent and Trademark Office, develop information about foreign patent laws, requirements, procedures, and costs and make this information readily available to small businesses that patent in the United States."

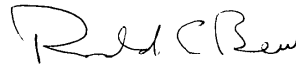
Appendix VIII
Comments from the Small Business
Administration

2

SBA would be pleased to make its websites available for purposes of linking to authoritative sources on international patent law and procedures. SBA would welcome an opportunity to provide U. S. small businesses with reliable information about foreign patent laws, requirements, procedures, and costs. SBA, however, does not have the requisite expertise in-house to develop and maintain technical patent information; the Patent and Trademark Office, which is better suited to develop such information. SBA can play an active role by assisting the Patent and Trademark Office in disseminating the information to small businesses.

SBA would also look forward to cooperating with the Patent and Trademark Office on innovative ways to address the problem of providing relevant information on international patents to small businesses.

Sincerely,



Ronald E. Bew
Associate Deputy Administrator for
Capital Access

See comment 1.

The following is GAO's comment on the Small Business Administration's (SBA) letter dated July 8, 2002.

GAO Comment

1. We recognize that SBA does not have the requisite expertise on foreign patent laws to independently develop such information. We modified the recommendation to direct SBA and USPTO to collect and make available existing information about foreign patent protection.

GAO Contacts and Staff Acknowledgments

GAO Contacts

Elizabeth Sirois (202) 512-8989
Shirley Brothwell (202) 512-3865

Staff Acknowledgments

In addition to those named above, Martin de Alteriis, Gezahegne Bekele, Alan Frazier, Brandon Haller, Ernie Jackson, Rona Mendelsohn, Melissa Pickworth, and Jody Woods made key contributions to this report.

Glossary

Annuities

See Maintenance Fees.

Anticipated Invention

An invention is said to be anticipated when it is too similar to an earlier invention to be considered novel. Because novelty is a requirement for patentability, anticipated inventions are not patentable. An invention may be anticipated by prior publication, prior invention, sale, public use, or display of the invention more than a year prior to filing the patent application.

Basic Fee

A fee that is paid for obtaining a foreign patent upon entrance into the international stage and the national stage.

Claims

Claims define the invention and are what are legally enforceable. The specification must conclude with a claim particularly pointing out and distinctly defining the subject matter that the applicant regards as his or her invention or discovery.

Designated Office

The office of a contracting state in which the protection for an invention is desired. See Designation.

Designation

An indication that the applicant makes, in the request for an international application filed under the Patent Cooperation Treaty, as to the contracting states in which protection for an invention is desired.

Elected Office

The national office or intergovernmental organization of, or acting for, the contracting state that the applicant elects under chapter II of the Patent Cooperation Treaty.

Election

An indication that the applicant makes, in the demand for an international application filed under the Patent Cooperation Treaty, as to the contracting states in which the applicant intends to use the results of the international preliminary examination.

European Patent Convention

A convention, concerning the granting of European patent protection, signed in Munich in 1973 within the scope of the European Economic Community. The aim of the convention is to make the protection of inventions in the member states easier, cheaper, and more reliable by creating a single European procedure for the grant of a patent on the basis of a uniform body of substantive patent law.

European Patent Office (EPO)

EPO, founded in 1977 under the European Patent Convention, issues “European patents” that are valid in the 24 European member states (as of June 1, 2002) on the basis of a single application and an examination procedure using uniform standards.

Examination

A process in which a patent examiner will review a patent application, correspond with applicants, and decide whether inventions deserve patents based on claims.

Filing Date

Date sent on a “filing receipt” from the U.S. Patent and Trademark Office (USPTO). The date is usually 1 to 4 days after the patent application is mailed to USPTO. The date starts the period within which a patent application must be filed in other countries to receive patent protection. The date also closes the 1-year period during which an inventor can publicly use, work, describe, or place the invention on sale in the United States without the anticipation rule being applied to bar a patent on the invention. Any developments that occur after this date will not be considered as prior art that would preclude the granting of a patent.

Filing Fees

Fees that an inventor pays to the designated or elected office for filing a patent application.

First-to-File System

A system whereby a patent is awarded to the first inventor to file a patent application. This system is used by every country in the world except the United States.

First-to-Invent System	A system whereby a patent is awarded to the inventor who files a patent application and establishes the earliest invention date. The United States is the only country in the world that uses this system.
Grace Period	A fixed period of time immediately preceding the filing of a patent application during which certain disclosures of the invention to the public are permitted without prejudicing the patentability of the invention.
Grant	A grant occurs when a designated or elected office issues a patent on an invention. The office sometimes charges a fee for a grant.
Independent Claim	A claim that by itself describes an aspect of an invention without reference to any other claim.
International Preliminary Examination	An examination governed by chapter II of the Patent Cooperation Treaty in which a preliminary and nonbinding opinion is given about whether the claimed invention appears to be novel, to involve an inventive step (nonobvious), and to be industrially applicable.
International Preliminary Examination Authority	Experienced patent offices appointed to carry out international searches and the international preliminary examination. These offices include patent offices in Australia, Austria, China, Japan, Russia, South Korea, Sweden, the United States, and the European Patent Office.
International Searching Authority (ISA)	National office or intergovernmental organization that carries out the international search. The tasks of ISA include establishing documentary search reports on prior art with respect to inventions that are the subject of patent applications. The Assembly of the Union of the Patent Cooperation Treaty appoints the International Searching Authorities.

International Search Report	A report that an International Searching Authority produces that lists citations of published documents that might affect the patentability of the invention claimed in an international patent application.
Issue Fee	A fee that the national patent office charges after approving a patent.
Maintenance Fees	Fees that inventors pay to patent offices in order to keep an issued patent in effect. Fees are generally required annually from the 3rd year to the 20th year of the patent term.
Multiple Claims	Multiple claims are sometimes included in patent applications because inventors are seeking protection for different aspects and/or uses of the same invention or for closely related inventions.
National Stage (National Phase)	The second of the two main phases of the Patent Cooperation Treaty procedure. The national stage consists of the processing of the international application before each office of, or acting for, a contracting state that the inventor designated in the international application.
Office Action	A notification from a patent office regarding an examiner's decision on a patent application. The office action states reasons for any adverse decision, objection, or requirement and provides information that may assist the applicant in judging whether to pursue the patent application.
Paris Convention	Also known as the Convention for the Protection of Industrial Property, the 1883 Paris Convention is a treaty adhered to by 163 countries that give limited recognition to one another's patent application filing dates. For 1 year after the date of filing of a U.S. patent application, essentially the same patent application may be filed as a "foreign counterpart" application in any or all other countries that subscribe to the convention. Any foreign counterpart application that is filed in this way will be treated in the foreign country in question as though it had been filed on the U.S. priority date and not on the actual date of filing in the foreign country in question.

Patent	The grant of a property right that a national government or an international intergovernmental authority issues for an invention, giving the inventor the right to exclude others from commercially making, using, or selling the invention during the patent term. Inventions that patents cover typically include products as well as processes for making or using new or existing products.
Patent Agent	A nonattorney with technical training who is legally permitted to draft, file, and prosecute patent applications on behalf of inventors.
Patent Cooperation Treaty (PCT)	PCT came into force on January 24, 1978, and presently has 115 countries as adherents, including the United States. The treaty facilitates the filing of applications for patents on the same invention in member countries by providing, among other things, for centralized filing procedures and a standardized application format. The World Intellectual Property Organization in Geneva, Switzerland, administers PCT.
Patent Harmonization	A multilateral effort to standardize patent procedures.
Patent Pendency	Patent pendency is the amount of time it takes for a patent to be issued or the patent application to be finally rejected.
Patent Term	The duration of the patent protection.
PCT Chapter I	The first, mandatory phase under the Patent Cooperation Treaty that includes performance of an international search, issuance of an international search report, and publication of the patent application and search report by the international bureau of the World Intellectual Property Organization.

PCT Chapter II	The second, optional phase under the Patent Cooperation Treaty that includes examination of the international application and issuance of an international preliminary examination report.
Prior Art	The body of information, including patent and nonpatent literature, that is consulted to determine the patentability of an invention.
Prosecution	The full scope of procedures that must be followed to actually obtain the patent.
Receiving Office	The national patent office or intergovernmental organization where the inventor files the international application of the Patent Cooperation Treaty and pays the international stage filing fees.
Scope of Patent Protection	The scope of patent protection outlines the boundaries of the invention for which the inventor is seeking exclusive rights.
Search	A search of previous and existing patents and other documents that might describe the conceived invention. Searches are carried out to discover whether the invention is novel and nonobvious over the prior art to qualify for a patent.
Search Fee	A fee that a patent office or intergovernmental organization charges to conduct a search of previous and existing patents.
Translation Fees	Fees that patent applicants incur to translate a patent application into the language of the designated country.
Transmittal Fee	A fee that a patent office charges for the patent application to be sent or conveyed to the patent office by means of a transmittal letter required in the patent application.

U.S. Patent and Trademark Office (USPTO)

An administrative branch of the U.S. Department of Commerce, USPTO is charged with overseeing and implementing the federal laws on patents and trademarks. The agency is responsible for examining, issuing, classifying, and maintaining records of all patents issued in the United States. USPTO also serves as the filing agency for Patent Cooperation Treaty applications.

World Intellectual Property Organization (WIPO)

An intergovernmental organization of the United Nations system, WIPO is responsible for promoting the protection of intellectual property throughout the world and for administering various multilateral treaties dealing with the legal and administrative aspects of intellectual property.

GAO's Mission

The General Accounting Office, the investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through the Internet. GAO's Web site (www.gao.gov) contains abstracts and full-text files of current reports and testimony and an expanding archive of older products. The Web site features a search engine to help you locate documents using key words and phrases. You can print these documents in their entirety, including charts and other graphics.

Each day, GAO issues a list of newly released reports, testimony, and correspondence. GAO posts this list, known as "Today's Reports," on its Web site daily. The list contains links to the full-text document files. To have GAO e-mail this list to you every afternoon, go to www.gao.gov and select "Subscribe to daily E-mail alert for newly released products" under the GAO Reports heading.

Order by Mail or Phone

The first copy of each printed report is free. Additional copies are \$2 each. A check or money order should be made out to the Superintendent of Documents. GAO also accepts VISA and Mastercard. Orders for 100 or more copies mailed to a single address are discounted 25 percent. Orders should be sent to:

U.S. General Accounting Office
441 G Street NW, Room LM
Washington, D.C. 20548

To order by Phone: Voice: (202) 512-6000
 TDD: (202) 512-2537
 Fax: (202) 512-6061

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: www.gao.gov/fraudnet/fraudnet.htm

E-mail: fraudnet@gao.gov

Automated answering system: (800) 424-5454 or (202) 512-7470

Public Affairs

Jeff Nelligan, managing director, NelliganJ@gao.gov (202) 512-4800
U.S. General Accounting Office, 441 G Street NW, Room 7149
Washington, D.C. 20548

**United States
General Accounting Office
Washington, D.C. 20548-0001**

**Official Business
Penalty for Private Use \$300**

Address Service Requested

**Presorted Standard
Postage & Fees Paid
GAO
Permit No. GI00**

