

# The Decision to Patent: Why, When, and How Much

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## Overview

- Whether and when an SBIR firm should patent runs through not only the patent laws, but also the SBIR rules and regulations, and requires an understanding of both.
- Both regimes involve the creation and protection of new technology, but they address different types of information and provide different types of protections.
- Obtaining the benefit of the patent monopoly and protecting SBIR data from nondisclosure are different protections.
- Sometimes they compete with each other and force decisions by the SBIR firm.

## **What Are the Major Issues Facing an SBIR Firms That Wishes to Patent?**

- The major tradeoff is between the level of disclosure required to get a patent versus the benefits of keeping the technology secret.
- The rights the Government receives in patented technology is also different than the rights it receives in SBIR data
- The timing issues associated with filing for patent protection for Government-funded inventions is a significant issue

## The Government's SBIR Nondisclosure Obligation

- The Government can freely disclose SBIR data within the Government.
- However, the Government is prohibited from disclosing your SBIR data to any third party for a period of:
  - 5 years (DoD contracts) or
  - 4 years (non-DoD contracts)
  - Both of which can be "rolled over" or extended.
- After the protection period expires, the Government can disclose your SBIR data to private firms who can use it.
- If *you* disclose your SBIR data before the protection period expires, the Government can also disclose it to whomever it pleases.

## When Should I Consider Patenting?

- Entrepreneurs who invent or discover new and useful ideas are faced with issues of whether/when to patent.
- A **utility** patent is a constitutionally recognized right to *exclude others* from:
  - making, using, offering to sell, selling and importing
  - *new* and *useful* inventions and discoveries
  - for a period of 20 years from the date the patent application is filed.
- Patents often make sense for innovators when a technology could be easily reverse-engineered once available for public sale/examination:
  - The formula for *Coca-Cola* is hard to reverse-engineer; *Coca-Cola* vigorously protects it as a trade secret.
  - By contrast, a skilled firm might be able to implement an idea once they hear of it, see a prototype, or understand its functionality – e.g. the firm could write software based on a working knowledge of what the program does; in such cases, a patent prevents others from stealing an idea and creating their own competing products for things that cannot be kept secret – are apparent to the public.



## What Does a Patent Protect?

- Utility patents protect *new* and *useful* processes, machines, “compositions of matter” (e.g., new drugs), ideas, and improvements to existing processes,
- Utility patents generally do not protect, for example, the shape or appearance of an article – other forms of intellectual property rights may “fill the gaps”
- Example: Software
  - A *utility patent* may protect the methods and processes the software implements – i.e., what the software “does”
  - A *design patent*, *copyright* or even *trade dress* may protect what the software looks like on the screen, e.g., its layout and formatting
  - A *copyright* may protect the source code specifically implementing the software methods



## What Must Be Disclosed to Get a Patent?

- To obtain a patent, the inventor must provide the PTO:
  - A *written description* of the invention, including how to make and use it, with enough detail to enable any person "skilled in the art" to make and use the invention, AND
  - The *best mode* known to the inventor of carrying out the invention.
- So what does this mean in practical terms?
  - The inventor provide enough information in the patent application that someone else having the same skill set could build the invention, and the inventor has to explain the best way to implement the invention that he knows of.
  - But, the inventor does not have to spell out every single detail – a “person having ordinary skill in the art” is assumed to have some baseline knowledge.

## When Does My Patent Information Become Public?

- It depends on the type of patent application.
- *Provisional patent applications:*
  - These are like “placeholder” applications – they preserve patent protection of the idea from the date of filing but expire after one year.
  - In order for the provisional patent application to result in a patent, a non-provisional patent application must be filed before the provisional application has expired.
  - The provisional can be informal (PowerPoint, only a few pages, no claims, etc.) but must still fully disclose the invention and provide the best mode of making it.
  - All information about a provisional patent application remains secret unless a non-provisional application is filed “claiming priority” from the provisional application.
- *Non-provisional patent applications:*
  - These are “regular” patent applications capable of issuing as patents, and must adhere to all patent formalities (claims, proper figures, etc.).
  - Non-provisional applications are published and publicly available 18 months after the filing date of the earliest application (filing date of the non-provisional or an earlier provisional).
  - However, if the patentee has no interest in seeking patent protection outside the US, it can file a non-publication request. In that case, all information about the application is kept secret until a patent issues (can take 3-5 years).

## Why Must an Inventor Disclose All of This Information to Get a Patent?

- The patent system is supposed to incentivize individuals to contribute to the public knowledge base. The Government gives inventors a *20-year* right to exclude others from practicing their inventions *in return* for inventors increasing the public base of scientific and technical knowledge.
- This, in turn, spurs innovation and development by other individuals, either building on the previous knowledge or looking for new ways to accomplish the same task (usually to avoid infringing the patent).

## Do I Have to Disclose My SBIR Data in My Patent Application?

- Only to the extent that any such data is required to explain to a person having ordinary skill in the art:
  - How to make and use the invention, and
  - The best mode known to the inventor of carrying out the invention.
  - In almost every case some SBIR data will be disclosed
- However, be aware that if you *do* disclose SBIR data in your patent application, *once the application becomes public* (either through publication or issuance) the Government is no longer subject to a non-disclosure application with respect to the disclosed SBIR data.
- Even if a patent issues, SBIR data that was not disclosed in the patent may still result in an edge the inventor has over would-be infringers.
- Technical data is the SBCs edge, even if some has been disclosed in a patent -- technical data can checkmate a would-be infringer.

## Examples

- Say my innovation is *software* – Do I have to turn over my source code?
  - Generally, NO. You can explain in words, flow charts and other diagrams what your software does. A person having ordinary skill in the art (e.g., a software developer) is expected to know how to take a process described in words and program it.
- Say my innovation is *hardware* – Do I have to turn over all of my schematics?
  - Again, generally, NO. You can provide “black box” diagrams, flow charts and a written description showing what the hardware does. A person having ordinary skill in the art (e.g., a hardware developer) is expected to know how to select hardware components and reconstruct the “black boxes.”

## If I Get a Patent, Can I Stop the Government from Using It?

- A patentee can *never* stop the Government from practicing his or her patented invention.
- If the Government funds the development of a patented technology, under the Bayh-Dole Act, it receives a *royalty-free* license in the invention to practice the invention, or to have a third party practice the invention, anywhere in the world.
  - This means that, in theory, the Government can take a patented invention and use it within the Government, or contract to have the invention used, by a firm other than the inventor's.
  - In practice, however, the Government has very rarely made effective use of this license. In fact, most agencies do not disseminate this information to other agencies. And there are no known instances of the Government using this license to have a third-party manufacture a patented technology.
- Even if the Government does NOT fund the development of the patented technology, the Government is still permitted to practice the patented invention or have a third party practice the invention on its behalf – but the patentee can sue the Government for “*reasonable compensation*” for these activities.

|                                                    | Patents                                                                                                                                                                                                                                      | SBIR                                                                                                                                                                                                                  |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of Information Created                        | Ideas -- how to make and use a new and useful invention or discovery                                                                                                                                                                         | Technical data – scientific or technical information recorded in any form                                                                                                                                             |
| What Must the Innovator Disclose?                  | Enough information to enable a person skilled in the art to make and use the invention or discovery                                                                                                                                          | Only technical data generated under the contract that the contract requires be disclosed <i>to the Government</i>                                                                                                     |
| To Whom Must the Innovator Disclose?               | The PTO, and then the public                                                                                                                                                                                                                 | Only to the US Government – which cannot disclose it to private entities                                                                                                                                              |
| How Long Can the Innovator Require Non-Disclosure? | <u>Provisional applications</u> – forever<br><u>Non-provisional applications</u> – until publication (18 months) or issuance (3-5 years), depending on whether a non-publication request is filed                                            | 4 years (non-DoD contracts) or 5 years (DoD contracts), <u>unless</u> 1) the protection period "rolls over;" or 2) the innovator discloses the data before the expiration of the protection period                    |
| What Happens After Disclosure?                     | If a patent issues, the innovator receives a 20-year period to exclude others (except the Government) from practicing the invention or discovery. If a patent does not issue, the information is in the public domain and can be used freely | Once the 4/5 year period expires – or when the innovator first discloses his data, if prior to the expiration of that period – the information is subject to being placed in the public domain and can be used freely |
| Can the Government Use the Innovation for Free?    | If it paid for it, yes. If it didn't, no.                                                                                                                                                                                                    | Yes, but only for evaluation and for Government purposes                                                                                                                                                              |

## If I Want to Get a Patent, When Should I File?

- The timing of filing a patent for SBIR technologies requires understanding the timing provisions of two key statutes:
  - The “America Invents Act” (2011)
  - The “Bayh-Dole Act” (1980)



## America Invents Act (2011)

- The “America Invents Act” (AIA) was passed in 2011; key portions of the AIA take effect on **March 16, 2013**.
- These provisions of the AIA incentivize inventors to file patent applications as quickly as possible:
  - Prior to March 16, 2013, the US operated on a “**first to invent**” patent system. This meant that if two people filed a patent application on the same innovation, the person who could prove he invented it first would be entitled to receive any patent issuing on the innovation. The US was the only jurisdiction in the world with this system.
  - As of March 16, 2013, the US will change to a “**first to file**” patent system. This means that if two people file a patent application on the same innovation, the person who filed the application first would be entitled to receive any patent issuing on the innovation.
- In many cases, this is expected to create a “rush” to the United States Patent and Trademark Office.



## Bayh-Dole Act (1980)

- However, for Government contractors, including SBIR firms, there are other timing issues to consider.
- The Bayh-Dole Act requires Government contractors to disclose (on Form 882) every invention “conceived or first actually reduced to practice” under a federal contract – including an SBIR award – within a “reasonable time” after the contractor’s patent person becomes aware of the invention.
- Bayh-Dole then provides strict deadlines for both electing to file and patenting after disclosure. The SBIR firm has:
  - *Two years from the date of disclosure to the Government* to elect to take title to the invention (*i.e.*, to agree to file a patent)
  - *One year after the election to take title* to file a patent application (this filing deadline can be met by filing either a provisional or non-provisional patent application)
- **If an SBIR firm creates a patentable invention and fails to meet these deadlines, the Government can take title to the invention!**

## How Can I Avoid These Bayh-Dole Issues?

- The key to whether Bayh-Dole requirements kick in is whether the invention constitutes a “subject invention” – *i.e.*, an invention that was:
  - **Conceived** in the performance of the federal contract, **OR**
  - First actually **reduced to practice** in the performance of the federal contract.
- What does that mean? Under US patent law:
  - “*Conception*” refers to the mental act of thinking of the idea of the invention and how it would be implemented
  - “*Reduction to practice*” refers to the act of actually making the invention work for its intended purpose. There are two types of RTP:
    - “Actual” RTP means that the inventor builds a fully-functioning prototype.
    - “Constructive” RTP means that the inventor files a patent application that fully discloses an invention that will work for its intended purpose.



## What Does This Mean for SBIR Awardees?

- Whenever possible, SBIR awardees will want to establish that their inventions do NOT fall within the definition of a “subject invention,” *i.e.*, they will want to show that the invention was:
  - Conceived *outside* of any SBIR award, **AND**
  - Reduced to practice *outside* of any SBIR award.
- So long as the invention is not a “subject invention,” the SBIR awardee has **no obligation to disclose it** to the Government and Bayh-Dole will not apply.

## How Can You Prevent the Government from Getting These Rights?

- There is a solution to this dilemma!
- First, make sure the idea is fully *conceived* in the Phase I proposal.
  - An awardee should be able to show conception prior to the award because the idea, concept or technology is fully described in the Phase I proposal.
  - Describe the concept/idea completely in the Phase I proposal.
  - An idea is **rarely**, if ever, **conceived** under a Phase I award because it is described in the proposal prior to award



## How Can You Show It's Not a "Subject Invention"?

- Second, make sure that the invention is *not reduced to practice* during the Phase I award:
  - Phase I is limited to *feasibility* testing of the idea – this rarely results in "**actual**" reduction to practice of the invention.
  - Therefore, to avoid issues under the AIA and Bayh-Dole, do not create a prototype under Phase I or reduce the concept to practice by filing a provisional or non-provisional patent application (constructive reduction to practice) during Phase I the contract – wait until it is over
  - It is safest to wait until Phase I is complete before filing a patent application unless circumstances create a rush to the PTO under the AIA.



## When to Patent?

- While a case exists where the Government took rights in a patent because the firm failed to act within the deadlines **after disclosure** (*Campbell Plastics*), **no case** exists (to the presenter's knowledge) where the Government challenged a **failure to disclose** when the firm patented after the end of a Phase I contract but prior to a Phase II award.
- HOWEVER – Remember that following passage of the AIA, delaying the filing of a patent application could result in someone else beating you to the USPTO!

## How Much Does Patenting Cost?

- Patent costs generally consist of four parts:
  - Patent preparation costs;
  - Patent prosecution costs;
  - USPTO fees; and
  - Patent defense costs.



## Patent Preparation Costs

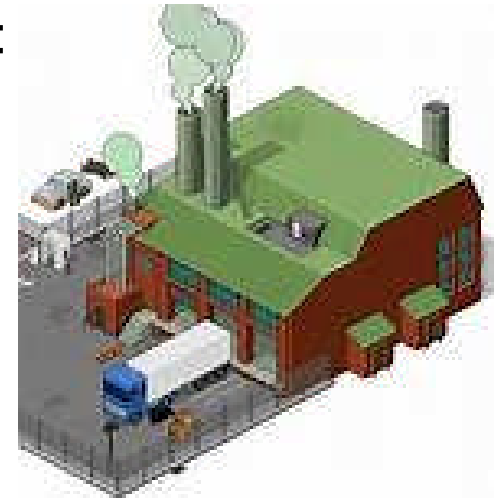
- Individuals can prepare and file patents on their own, though the technical requirements for patenting can be difficult to understand.
- If a patent agent or attorney is retained, patent preparation costs typically range anywhere from \$7,500 to \$15,000, although costs of more than \$30,000 can occur for complex cases.
- In some cases, it is desirable to perform a search prior to seeking patent protection. Search firms typically perform this work for about \$100/hour. An average search can cost in the range of \$1,000 to \$2,000.

## Patent Prosecution Costs

- Once a patent application is filed, the Examiner asks questions on a variety of issues – patent technicalities, other related inventions, etc.
- In many cases, there will be 2-3 “office actions” from the Examiner before a decision (issuance/denial of the patent) is final.
- Again, an inventor can respond to these Examiner requests, but they usually require detailed knowledge of a number of patent laws.
- If a patent agent or attorney is retained, patent prosecution costs typically range anywhere from \$5,000 to \$10,000 per response.
- This process typically takes 3-5 years – though there is a lot of “down time” between office actions.

## USPTO Filing Fees

- The USPTO charges inventors a variety of fees:
  - For filing a new patent application;
  - For certain actions taken during prosecution of a patent application;
  - On issuance of a new patent; and
  - At various intervals during the life of the patent.
- However, the AIA provides fee reductions for small entities:
  - Fees for “small entities” (under 500 employees) are reduced by 50%
  - Fees for “micro entities” (small entity + no inventor has been listed as an inventor on more than four previous patent applications + certain applicant/inventor maximum income levels) are reduced by 75%
- Compared to patent preparation, prosecution and defense costs, filing costs are the least of the overall costs.



## “Other” Patent Costs

- It may be desirable to file for patent protection abroad.
  - Foreign filings are much more expensive, but can be necessary to protect the technology abroad.
- The ***real*** costs of patents are in ***enforcing*** them.
- For small businesses, the costs of these expensive cases are even greater when one considers the manner in which they can completely distract the owner/founder/entrepreneur from building the business.

## Recovery of Patent Costs

- FAR 31.205-30 states that patent costs can be covered as direct contract expenses only as *requirements of the contract*.
- Contract costs (except for general counseling) not required by the contract are not allowable
- That means that the contracting officer must approve filing of a patent as a statement of work in the contract for patent costs to be allowable.
- This does not often occur, and probably will not occur in tight budget periods.

## So What Should I Do? Should I Patent or Should I Rely on SBIR Non-Disclosure?

### ■ Questions to consider:

- Is my idea even subject to patenting?
- What type of information will I need to disclose in order to get a patent?
- How much of my idea is visible to the naked eye? (SBIR cannot protect the concept – only data)
- If I sell my product commercially, are others likely to reverse-engineer it? Reproduce it?
- How much data in support of my idea will I have to disclose to the public in a patent?
- How much does a patent cost?
- Am I going to have to enforce the patent against potential infringers, or even the Government (which can practice my idea for a royalty)?



## Should I Patent? Keep My Innovation Secret? Can I Do Both?

- The patent decision involves judgments as to whether a patent *can* issue, but also a judgment about *whether* SBIR data will need to be disclosed to get it:
  - If the idea, design, or method can only be protected by means of a patent, then the patent option is the right one.
  - If getting the patent requires disclosure of SBIR data, and disclosure is too high a price to pay, then patenting may not be a good option.
- Even if a patent issues, critical undisclosed SBIR data may still result in an edge the inventor has over would-be infringers, especially if additional data beyond the patent disclosure is developed.
- Undisclosed technical data can checkmate a would-be infringer.

## Summary

- The patent process is a **disclosure** process – and involves gaining the patent monopoly in exchange for disclosure of ideas, designs, concepts, or methods.
- SBIR **nondisclosure** protection applies to technical data – which differs from an idea – and is best thought of as something you can read – *e.g.*, code, sketches, formulae, reports.
- Patenting requires upfront outlays of money for searches, patent preparation and defense or prosecution.
- SBIR protection of data involves vigilance, marking SBIR data to protect it, and attention to data being developed.
- Both patenting *and* using the nondisclosure rights of SBIR have their role and should be used appropriately.

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Please send questions or comments to:



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