Prepare an Effective Intellectual Property Business Plan

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The intellectual property component of a business plan is instrumental in protecting and promoting engineering innovations. Here's how chemical engineers can provide valuable input into the preparation of an IP business plan.

Suppose you have a great idea that has the potential to catapult you to fame and fortune. Perhaps you developed a new process for making biofuels, or identified a genetic marker that can predict the occurrence of debilitating disease.

How do you capitalize on your discovery and get it to market? How do you demonstrate to investors that your idea is winner, and get them to back your technology over someone else's?

An intellectual property (IP) business plan will allow you to do just that. The IP business plan is one component of a comprehensive business plan, which serves as a roadmap for starting a new business or undertaking a new venture in an established enterprise. The business plan addresses many factors that impact how the business will make money — including its value proposition (*i.e.*, the statement that tells the customer what should be expected from a product), the business's strengths, the market and the competition, resource requirements, funding, personnel, etc.

The IP business plan component serves several special purposes — the first of which is to persuade others of the merits of the overall business proposal. For a start-up business, its goal is to attract investors and obtain the resources needed to get the product or service to market. The IP plan can also be critical to obtaining membership in a business incubator and access to its investors and other resources. In established businesses, the IP plan can be used to persuade management to allocate funds to pursue a new proposal or to attract investors.

In addition to conveying the benefits of the technology and the expected return on investment, a business plan should indicate that the downside has been carefully considered. Investors and managers will rely on the plan to assess the risks — as well as the benefits — of investing.

Another purpose of the IP plan is to establish goals and benchmarks for the business. The plan should specify key

IP deliverables and propose a schedule for their completion. In this regard, the business plan provides an objective standard by which the activities of the business may be judged. It may also facilitate budgeting by identifying projected costs.

How IP affects the value of technology

In today's knowledge-based economy, intellectual property is critical to profitability. If competitors cannot practice your technology without your permission, the value of your business is significantly enhanced. The return on investment from new technologies is directly affected by the exclusivity provided by IP laws.

To provide a complete and objective assessment of the value of a business proposal, IP issues must be considered from both offensive and defensive standpoints. An analysis of the extent to which exclusivity will be available via the intellectual property laws is critical to this assessment.

The IP laws of the United States and other jurisdictions provide several mechanisms to increase market share, and investors and management want to know how the business intends to use those mechanisms. For new technologies, patents and trade secrets will be essential to establishing exclusivity in a particular market. Copyrights may be important, especially if software will be a key component of the business. Trademarks may also come into play, especially in the area of consumer goods, where brand recognition is important.

Intellectual property issues

Before you start to write an IP business plan, several issues should be addressed.

Link the IP to the value proposition. An IP business plan should present the company's value proposition and explain how the IP will support it. For example, if the business involves a new catalyst that will increase product yield of an established process, the exclusive right to use the catalyst will translate to increased revenues from the sale of additional product. If a business has the exclusive right to sell the catalyst, this exclusivity will translate to increased revenues relative to competitive catalysts. The specific advantages that the technology will provide over the closest competitive technologies (*e.g.*, cost, efficiency, throughput, etc.) should be considered and, if possible, quantified.

Determine what is protectable and how to protect it. To link the value proposition to the business's IP, determine what aspect of the proposed product or service is protectable and select the appropriate IP mechanism to protect it.

To obtain a U.S. patent, an invention must be novel and nonobvious. If the novel and nonobvious aspects are not the features that provide the anticipated competitive advantage, the protection afforded by a patent will not add value, because competitors might design around the patent and use the unprotectable aspects of the invention to obtain the same benefits as the patent holder. In this case, there is a disconnect between the business's value proposition and its IP.

When seeking a patent, the inventor must disclose how to make and use the invention so that those of ordinary skill in the relevant technology can practice it. If use of the invention is difficult to detect, it will be correspondingly difficult to identify infringers and enforce a patent. Meanwhile, the patent document will have taught competitors how to practice the process.

If the invention cannot be reverse-engineered based on examination of the product or its published literature, trade secret protection is more appropriate than patent protection. If the aspects of the invention that add value can be kept secret, then trade secret protection will support the value proposition. However, if many different people or companies are working on the same problem, a competitor may independently develop the trade secret, in which case there will be no recourse against the competitor.

Investors also want to know about the "strength" of the IP. This is generally determined by looking at what is protectable through the IP laws and by assessing the economic advantage that can be obtained by being able to exclude others from practicing what is protectable.

To determine what is protectable, a search of prior art patents, patent applications, and other publications is conducted. Engineers can make a significant contribution to this area of business plan development by performing the search and evaluating the search results. Familiarity with industry or research publications that may be relevant, the technology, and its terminology will allow engineers to quickly digest the references that are uncovered and focus on those that are significant. Patent attorneys can then apply the governing legal standards to the information obtained in the search to identify those aspects of the technology that may be protectable.

Evaluate IP enforcement mechanisms. In the case of patents, you must detect infringement in order to enforce the patent. Determining whether competitors are using your invention involves consideration of the nature of the competitive products, the information that may be published concerning them, and any analytical tests that can be performed to evaluate them.

Where the invention will be commercialized is also important. Patents are territorial in nature, and must be obtained on a country-by-country basis. If a product will be commercialized in markets with weak enforcement mechanisms, the value of the IP in those markets will be correspondingly diminished. The legal structure and enforcement mechanisms in those countries will be critical to the ultimate enforceability of IP rights.

In the case of trade secrets, mechanisms for preserving secrecy need to be considered. If a business intends to limit access to critical information, such access must be tracked and monitored so that misappropriation can be detected and prevented.

Once the strength of the IP has been assessed, its value should be considered. This may require the involvement of financial experts who can evaluate market data. However, the key issue from an IP perspective will be determining the extent to which the previously identified protectable rights confer a competitive advantage that will increase market share. Here, too, engineers can play a key role by considering whether and how the protectable elements can be designed around while achieving the same benefits as the contemplated product. Investors want to be confident that customers will be drawn to your exclusive technology and that they will not want to (or have the option to) choose an alternative.

Address third-party rights and IP barriers to entry. Another critical issue to be considered concerns barriers to entry (*i.e.*, obstacles that might make it difficult for a business to enter a specific market) and, in particular, the business's right to use its technology.

A patent is a negative monopoly — it confers the right to exclude others from practicing an invention. However, it does not confer the right to practice the invention. If the invention is an improvement on an earlier technology that is the subject of an unexpired patent, practicing the improved technology will constitute patent infringement. This is an important and frequently misunderstood aspect of IP law. Investors want assurances that their investment will be used to develop the business and not spent on legal fees for defending against third-party IP claims.

The evaluation of third-party rights typically involves performing a right-to-use study, in which the claims of unexpired patents are reviewed to determine if a product would infringe. This can be a difficult task, especially if the field is crowded. Because of their familiarity with the technology, engineers can review and interpret the claims of competitors' patents to help identify any that may present an infringement problem. If potential problems are identified, patent attorneys can develop a strategy for avoiding infringement, invalidating the patents, or acquiring the necessary rights to practice the patents.

In addition to evaluating unexpired patents, consider also relationships between the business, its principals, and third parties to determine whether any other claims could be made against the business's IP. For example, if one of the principals came from a competitor company, she may have an employment agreement with a noncompete provision that would limit the scope of her duties. In addition, her knowledge of the former employer's trade secrets may make the business vulnerable to a charge of trade secret misappropriation.

If the business will rely on brand recognition, selection and registration of a trademark may be important. Before a name is adopted, perform a trademark search to determine if the mark is registrable, and to determine if any third parties have rights that may impair the business's ability to use the mark. Similarly, the availability of Internet domain

IP Glossary

Copyright — an exclusive right to reproduce, distribute, display, and/or perform an original work of expression that has been fixed in a tangible medium; generally includes literary, musical, and dramatic works, as well as audiovisual works, sound recordings, architectural works, and pictorial, graphic or sculptural works.

Intellectual Property — a set of rights in intangible items, such as words, works of art, inventions, and aesthetic designs; typically includes patents, trademarks, copyrights, and trade secrets.

Novel — under U.S. law, an invention is novel if is not disclosed by any single prior art reference.

Nonobvious — under U.S. law, an invention is nonobvious if it cannot be obtained by making trivial changes to prior art references, such as by substituting known equivalents or making modifications that are suggested by the prior art.

Prior Art — the body of existing information, such as patents, patent applications, journal articles, products, etc., against which the patentability of an invention is assessed.

Patent — a government grant that provides a right to exclude others from using an invention in a specific country for a specified period of time.

Patent Claims — a set of numbered paragraphs at the end of a patent that define the scope of what is legally protected; analogous to a deed for real property.

Trademark — a word, name, symbol, or device used to identify the source of a product or service.

Trade Secret — a formula, practice, process, design, instrument, pattern, or compilation of information that is not generally known or reasonably ascertainable, and by which a business can obtain an economic advantage over competitors or customers. In general, if information can be obtained through reverse engineering, it cannot be protected as a trade secret. In addition, a trade secret owner has no recourse against one who independently develops the trade secret.

names, especially those that correspond to the proposed trademarks, should be investigated to determine whether they are available.

Structuring and writing the IP business plan

As you structure and write the IP business plan, keep in mind that your audience may not be technically savvy or as familiar with the technology as you are.

Discuss the market need. Begin the plan with a discussion of the market need that prompted the development of the technology. Then, explain the technology and how it works in terms that will be understandable to investors.

Confidential or trade secret information that is critical to the business should be explained in terms of its overall function without being expressly described or disclosed. In addition, the dissemination of the business plan should be restricted to those with a need to see it. To the extent they are willing, potential investors should also be asked to sign a nondisclosure/confidentiality agreement as a condition of access to the plan.

Identify the IP assets. If patents have been issued or if patent applications have been filed, identify them. If patent applications are still at the conceptual stage, identify proposed applications and the patentable features that have been identified as the result of prior art searching. Also identify trademarks, copyrights, domain names, software, and license agreements. If yet-to-be-filed IP is identified, provide estimates of the costs involved in preparing and filing the relevant applications, as well as a timeline for doing so.

If patent or trademark applications have been filed, describe their status. If a patent filing strategy has been developed, explain it. Also, list the personnel who will contribute to the maintenance and development of the IP, along with relevant details of their backgrounds.

Explain how the IP will provide value. Once the IP has been characterized, describe the process by which value will be extracted from it. If the business will supply a product, describe how the IP will be used to secure a competitive advantage. Based on the prior art searches, discuss how the protectable aspects of the IP will enhance market share, and discuss the specific advantages, both technical and economic, that the proposed technology will achieve relative to the closest competitive technologies. If possible, quantify the expected market share and resulting revenues achieved by the IP. If the technology will be licensed, identify potential licensees and quantify the expected licensing revenues. Identify your competitors and their technologies. If enforcement mechanisms will affect the value of the IP, explain how.

Describe potentially conflicting third-party rights. If any might impact the business, *e.g.*, earlier broad patents that cover but do not specifically disclose the business's products, describe how those rights will be addressed — such as by designing around, licensing, or purchasing the rights.

As you structure and write the IP business plan, keep in mind that your audience may not be technically savvy or as familiar with the technology as you are.

Describe protocols for developing, harvesting, and protecting IP. If trade secrets and confidential information will be a key form of IP, discuss the mechanisms that will be used to maintain secrecy. List protocols designed to restrict access to trade secrets and confidential information to only those with a need to know. Also describe mechanisms for identifying information as confidential, so that employees will be aware of their obligations to protect its secrecy. If employee agreements will include provisions dealing with the access and use of confidential or trade secret information, those factors should be mentioned as well.

As the business grows, it will likely seek to improve on its core technology or develop new technologies. Describe the processes by which ideas will be generated, harvested, and evaluated. Many businesses have their employees complete invention disclosure forms that document their inventive activities. Describe how the invention disclosure forms will be prepared and reviewed to determine if they may be worthy of patent protection. Some businesses set up patent review committees that meet periodically to make these determinations; if such committees exist, mention them.

In closing

The IP business plan provides a clear roadmap for obtaining and developing the intellectual property necessary to achieve a business's goals. In addition, it provides assurances to investors that the business will be able to obtain the IP that it needs and that the IP will appropriately support the business. CEP

Literature Cited

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