A Key Obstacle to Implementing a Patent Strategy and One Way to Overcome It

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Many articles have been written that discuss the importance of having a "patent strategy" and why investing in a patenting effort may have substantial value for a company.[1] These articles also discuss why a driver for such a strategy should be the business goals of a company and not solely the protection of product or service features. However, one aspect of the process that has not been discussed as often is how to implement the strategy, particularly when a patent may not issue for several years after filing (as is often the case), and during that time the competitive environment and needs of a company may change drastically.

A Statement of the Problem

In one sense the "problem" faced by a company in implementing a patent strategy may be stated as:

> We will need a specific tool to help us obtain leverage in order to maintain a competitive advantage. The tool will not be available for at least 2 to 3 years, but it must be described in detail at present. Further, the possible situations in which we will need the tool are only generally known at present, and the ways in which we desire to use the tool may change between now and when the tool becomes available. Finally, the specific form of the tool that we will need is only known in a general sense at this time.

Although this description is purposely a bit vague, it is fairly close to the situation faced by any company that has innovations they wish to protect but is not completely certain how they might use the patents that result from protecting those innovations. The reason for this is because although a properly constructed patent portfolio has multiple possible value propositions,[2] the specifics of some of these value propositions are not possible to anticipate at the time a patent application is filed (i.e., the possible needs for, and uses of, intellectual property rights will typically vary as a company develops a presence in the marketplace and its goals or business model change). Thus, although a patent may provide a business asset, the ways in which that asset may be used are not always clear when the patenting process is started. Similarly, just as a company's goals or business model change, so too do those of its competitors, with new potential competitors arising over time. Thus, just as the business environment in which a company operates is a dynamic one, so too are the needs for and possible uses of a patent portfolio.

This presents an interesting challenge: obtaining a patent may take 2 to 3 years, during which time a company and its competition may change business models and strategies. It would appear to be difficult (if not impossible) to prepare in advance for the types of patent claims that might be needed in the future at the time that an application is filed.[3] Furthermore, the claims in a patent must find adequate support in the application as it was filed, in terms

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[1] Alan has written several articles that discuss the value propositions of a properly crafted patent portfolio and why it is a good investment, even for start-ups. See, e.g., "Patent Protection as Investment and Insurance," *Corporate Counsel* magazine (May 6, 2013); "Innovation, Development and the In-House Patent Program," *Law360* (December 10, 2012); and "Protect Your Company — And Increase its Value with a Strategic Patent Portfolio," *Seattle Business* magazine (October 2012).

[2] Such as to demonstrate innovation, to provide a tool with which to obtain leverage over a competitor, to provide an incentive for a possible business partner to become part of a joint development project, to provide an exit strategy for investors in the case of a business that does not succeed (and hence increase the likelihood of obtaining financing), etc.

[3] The claims of a patent are found at the end of the document and define the enforceable legal right that the patentee is entitled to, which is the **right to exclude** someone from making, using, selling, or offering to sell the patented invention in the United States, or importing the patented invention into the United States (as that invention is described by the claims, subject to the interpretation of the claim language in view of the patent specification and/or file history).

of the claimed invention being "enabled"[4] and in terms of satisfying the "written description" requirement.[5] As a result, it is necessary to consider these requirements of an application while drafting the application in order to produce an issued patent that can be used at a later date to obtain leverage through licensing or assertion, or to provide value in a prospective deal.

This makes the application preparation process more complicated than it may appear at first. Contrary to what some may think, producing a patent that can function as a business asset (and one that represents more than a minor incremental increase in value to a patent portfolio) requires a patent attorney who can function as more than simply a conduit for technical information. It typically requires a patent attorney who has an in-depth understanding of the present and potential value of an invention to the company, to the company's present competitors, to the industry in which the company operates or hopes to operate, and possibly to other industries both near term and in the future. This requires that the patent attorney understand the technical details of the specific embodiment of the invention that has been developed, as well as the underlying conceptual foundation of the "solution"[6] that is represented by the invention. This perspective enables the patent attorney to determine different ways in which to express the elements of the invention and to identify different possible use cases or environments in which the invention may have value. A patent attorney selected for such a task should be someone who is capable of obtaining a patent directed to more than just the precise product feature that incorporates the invention, but instead someone who takes into consideration: (a) the invention's underlying concepts and the high-level solution it provides, (b) one or more possible design around(s) that may be available if the invention is phrased in terms of more limited claim language, (c) the future competitive environment of the company, and (d) other possible use cases[7] when choosing how to describe the invention and its various uses and implementations.

By describing the invention's elements and use cases fully and properly in the patent application when it is filed, the possibility of being able to utilize a resulting patent to achieve a future business goal is greatly increased.[8] Thus, it is not just the innovation itself that matters, but also how that innovation is described or expanded upon in a patent application (and decisions made during examination of the application) that determines the value of having a patent that protects the innovation.

A Possible Solution to the Problem

Given the above, how does one prepare a patent application in a way that ensures it contains adequate support when it is filed for claims that are intended to protect against uses that may not be known or fully understood until years later? One way is to craft patent applications that not only describe an invention and its use by the company itself, but also provide support for claims covering a generic implementation of the solution represented by the invention, where that solution may be relevant to multiple use cases, operating environments and industries. In this sense, a patent application is not simply a description of a single product feature or process, but instead represents a description of a solution to a problem or class of problems, with the solution being expressed in varying levels of detail and in terms of being applicable to multiple operating environments.

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[4] Meaning that the description of the invention in the application is sufficient to permit one of ordinary skill in the art to make and use the invention without "undue experimentation."

[5] Meaning that the patent application must indicate to the reader that the inventor was in possession of the claimed invention, and hence recognized the use of their invention in a particular way or situation, or for a particular purpose.

[6] For example, the technical solution to a specific business and/or technical problem.

[7] For example, other operating environments or industries in which a similar problem arises or may arise, and other ways the inventive "solution" may be used to accomplish a business or technical goal.

[8] Note that this may be obtained by introducing new claims into a continuation application or applying a similar strategy.

Preparation of a suitable patent application includes the following tasks: (1) identifying those innovations (which are primarily motivated by the need to solve a business or technical problem arising during a company's product development cycle) that may have value to competitors or others with whom the company may engage in the future; (2) determining a way to characterize those innovations that can be used to increase the potential value of obtaining protection for the innovations; and (3) describing the innovations and implementing a protection strategy in a way that produces an asset that can be used for both presently known uses and for later possible use cases. Given these tasks, how can a company implement a process to accomplish the tasks and create value for a business? Although the goal(s) are clear, the process itself is one that is complex and dynamic, and requires a specialized set of skills and specific types of input information.

The first task is to identify product or service features that represent innovations that are worth considering for patent protection. This is typically because obtaining protection for these features may be of interest to a party with whom the company interacts in the future, and as a result will have value to the patent owner as a form of leverage in negotiations, as an incentive for another party to settle a dispute, etc. In many cases, such product or service features are those which differentiate a company in the marketplace and are expected to be a driver of revenue, market share or another metric. Next, it is useful to evaluate the identified features from the perspective of patentability[9] and to remove those that satisfy (or fail to satisfy) a specified criteria or threshold. This may require consulting with a patent attorney to determine the relative likelihood of obtaining patent protection for each of the potential innovations and then selecting a sub-set of the possible innovations for further consideration.[10]

Next it is important to decide how to characterize each possible innovation in order to increase the value of obtaining patent protection for the innovation. In order to do this, it is helpful to consider a new product feature or service from a different perspective than it might typically be considered. Instead of viewing a feature or service as providing a new option for a user, it should be viewed as providing a solution to a specific technical and/or business problem. This is easier said than done, as it requires an engineer or patent attorney to figuratively "step back" and formulate a "generic description" of a higher-level problem that is being solved, rather than focus on the details of an implementation that produces the new feature or service.

Such a generic description will typically be based on a number of considerations, including: (a) the context in which the feature or service is used (what general, non-limiting terms may be used to describe the operating environment for the feature or service?); and (b) what does the feature or service enable a user to do? Based on the answers to (a) and (b), it may be possible to formulate a statement that, at a high level, describes the technical or business problem for which the innovation provides a solution. The goal is to phrase the innovation as a solution to a broadly characterized technical or business problem. Examples of such possible "problem statements" might be: (1) how can a user be made aware of a need to recharge their mobile device before the battery level falls below the level that is required to enable transfer of data over a network?; (2) how can a user send an email message when they have an unreliable network connection?; or (3) how can a locked vehicle be towed without damaging its frame?

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[9] The criteria for patentability is defined by law and involves consideration of the subject matter of the invention (as some types of inventions have been determined by courts to be a *priori* unpatentable), the utility of the invention (which is typically not a difficult criterion to satisfy), the novelty of the invention, and the "non-obviousness" of the invention (which is a somewhat nebulous way of requiring that the invention represent an inventive or creative contribution and be more than the result of following standard engineering practices).

[10] Note that the sub-set selected may be a function of one or more parameters, such as present size of the patent portfolio, budget, short-term value of putting a "patent pending" designation on a product, etc., and that it is a dynamic characteristic that may change as a company develops a presence in a marketplace.

One thing to notice about each of the example problem statements above is that they are worded in a way that attempts to limit them as little as is practical to a specific use case, to a specific operating environment or to specific elements used in an implementation. Note also that generating such a problem statement may be an iterative process, in which an initial statement is refined as more is understood about what makes the invention novel. For example, the problem statement may be "narrowed" and made more specific to an operating environment or to a characteristic required for implementation of the invention if discussions with the inventor indicate that the invention has narrower applicability than might be suggested by the original problem statement.

Next, it is necessary to determine other possible use cases or situations in which the invention may be applicable and hence other entities for which such a patent would have value. In order to do this, it is helpful to consider other contexts in which the same or a similar problem arises. This may require discussions with the inventor(s), senior technical people, and even marketing or product development managers. It typically requires that the generalized, high-level description of the problem be used to identify other environments in which a similar problem arises. For example, if the problem being solved relates to how to optimally allocate bandwidth among multiple content delivery channels given a certain constraint, then it may be helpful to consider other industries in which a similar constraint arises or in which multiple streams of "product" are delivered via different delivery channels (where those "channels" may be communications channels, different networks or different physical delivery paths, and the "products" may be email messages, downloaded content or physical packages).

In this way, what might appear to be a problem solution that is of value only to a direct competitor of the company may instead turn out to be one of potential value to companies operating in both the same and in different product areas, and which rely on both the same and different system architectures to produce and/or deliver the product. Note that the way in which an invention is characterized and the way in which it is described in a patent application can be used to support a licensing or other monetization program that is implemented many years later.[11] Even if the company is likely to want to protect the specific implementation of the solution anyway,[12] it is still helpful to identify possible additional uses and users of the solution represented by the new product feature or service in order to provide support in the application for different claiming perspectives and alternative ways of describing the invention.

Once one or more innovations have been selected as candidates for patent protection and a high-level description of the problem being solved by each innovation has been developed (and areas where a solution to that problem would have value have been identified), it is necessary to describe those innovations and pursue their protection in a way that produces an asset that can be used for both presently known and for later possible use cases. The next section describes one method for doing that, which I have used to prepare patent applications that have the ability to be developed into business assets during the examination process.[13]

Functional Deconstruction

One of the keys to describing an innovation in a way that can support multiple use cases and implementations is a technique I refer to as "functional deconstruction." This is an organized way to identify information needed to

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[11] For example, if at some point it is desired to determine which entities may have an interest in licensing a patent containing claims directed to a solution to the generalized description of the problem being solved, this prior analysis of other potential industries in which a similar problem may arise provides a good starting point for looking for potential infringers and/or licensees.

[12] For example, because the company's patent portfolio is presently small (or non-existent).

[13] Note that during the examination of a patent application or its related applications, it may be possible to introduce new claims or amendments to claims that operate to expand the scope of protection desired and permit a patent to be obtained that includes claims covering the use of a generic problem solution in one or more industries and from one or more perspectives (end user, intermediary data processor, recipient of certain data, etc.).

prepare an effective application and to structure that information into a description of the innovation in a way that enables a patent application to provide value to the company and produce a useful business asset. Functional deconstruction is a form of system analysis, where instead of focusing on the details of a specific implementation of an invention, the operative elements or process steps are generalized and expressed as broader concepts. These broader concepts may be classes of elements or groups of processes that operate to perform a similar function (e.g., sorting, ordering, scaling, selecting, filtering, comparing, generating a type of output, etc.).

In order to practice this approach, the first step is to isolate each of the elements of a system or process that can be used to implement a generic example of the invention. This may include elements responsible for implementing a stage of an overall process to manipulate data, perform a type of data processing operation (e.g., filtering, windowing, transforming), permit a connection between the system and an external user, alter the characteristics of a data transmission channel, determine which products to recommend to a user, etc. In some ways, this step is similar to that of generating the "problem statement" referred to previously. The goal is to identify the primary functional elements or components of a generic implementation of the invention,[14] and to do so using high-level and non-specific language where feasible. For example, this might be accomplished by generating a high-level, functional block diagram of a system for implementing a generic example of the invention.

The result of this approach will be a set of elements or components that are needed to implement a generic version of the invention. For example, there may be an element that permits a user to input data, an element that processes the input(s) to extract a specific characteristic, an element that compares that characteristic to determine a relationship between what the user entered and what the system has previously stored and an element that transforms one form of input into a different one having a certain characteristic. It is important to make sure that the set of elements includes those needed to perform what are believed to be the novel steps of the innovative process or method, or the physical structures needed to perform the novel functions.

After identifying the set of elements, it is necessary to generate a list of the values or types that each element can take and still be capable of implementing the invention. This is sort of a listing of the "variations on the theme" for each element. The variations may be different devices that can be used, different data processing techniques (though all produce an equivalent output for purposes of the invention), different filters, different transforms, different ingredients (though all have a common characteristic), or different physical structures that can perform a function that is equivalent for purposes of the invention. Communications with the inventor may be needed at this point to isolate those "variations" that are practical in a business sense and/or technically feasible, or at least to remove those that are not. In addition to listing these variations, it is also helpful to include several similar, but arguably different ways of describing each function or step of an innovative method, or each function or operation of the elements of a system or device (these might be termed "functionally equivalent synonyms" for the purposes of implementing the invention).[15]

Next, it is possible to generate various combinations of the possible values or types for each functional element and from those to construct a set of possible implementations of the invention. These possible implementations should be constrained in that only those combinations that are practical in both a business and technical sense should be part of the set. This means that although a combination is technically feasible, if a rational business would not choose to implement a specific function using that technology it is probably best to remove it from the list.

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[14] This typically requires identifying the key function(s) needed to be performed to implement a process or the function(s) that the key structural components need to have to perform the process, and then expressing those in broad terms that are not inherently limited to a specific technique, type of component, etc.

[15] The idea is to communicate to the reader (who may be a patent examiner, jury member or judge) that the inventor was aware (i.e., "in possession") of many different uses and implementation methods for his/her "invention."

Given the information developed by the functional deconstruction process, a patent application can now be drafted that includes a discussion and detailed description of the following:

(1) A generic statement of the problem being solved;

(2) A discussion of multiple-use cases or contexts in which the problem might arise, both in the operating environment of the company and in related (but distinct) operating environments and/or industries;

(3) A description of the functional purpose of each operative element or stage of a process as used to implement a solution to the problem, and how that operative stage or element contributes to providing the solution;

(4) A description of each realistic form (from a business and/or technical perspective) that each element can take or each realistic function that each process stage can implement (together with any caveats regarding combinations that might not function properly together, etc.);

(5) A detailed description of an embodiment of the invention as implemented by the inventors;[16] and

(6) A discussion of uses for the inventive structures or processes in situations where they are intended to solve a different problem than that which the invention was formulated to solve.

Given the above information, the patent application can properly support claims directed to: (a) the embodiment of the invention implemented by the inventor (which is typically the product feature the inventor developed); (b) possible uses of the invention to solve a similar problem that arises in different operating environments; (c) uses of the invention to solve a different problem using the same techniques or elements, in the same or different operating environments; and (d) multiple possible ways of implementing each of the primary functional steps or elements of the invention.[17]

In theory at least, the included information enables the patent application to satisfy the written description and enablement requirements of the patent laws in so far as supporting a wide range of claims. This permits the introduction of claims that specifically address different operating environments and different implementations of the conceptual basis of the invention. This permits the application to function as a business asset since it can be "tuned" to provide value in response to recognizing a strategic value proposition or opportunity in which having such an asset would be beneficial (such as where a business wishes to increase the leverage it has over a party with whom it is negotiating). Thus, by thinking in advance about how to describe and generalize an innovation and focusing on the underlying conceptual foundation for the invention, the value of a patent application directed to that innovation can be increased substantially and can be used to generate one or more patents that can be used as business assets.

The "Bottom Line"

Although all of the possible uses for a pending patent application or issued patent cannot be identified at the time that an application is being prepared, there are certain techniques that increase the likelihood that an application can be used to produce an asset of value to a company at a time after the application is filed. These techniques permit the preparation of a patent application that can be "tuned" to provide a useful asset for a company that is operating in a dynamic and competitive environment.

[16] This is typically what is included in a standard patent application, with little more described in detail.

[17] Note that this may be preferable to relying solely on the doctrine of equivalents or another method of expanding the coverage of claims.

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