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JOURNAL

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PATENTS

An organization that applies an efficient approach to developing and managing its patent portfolio may obtain a particular advantage over its competitors in these troubled times.

Efficiently Developing and Managing Patent Portfolios

By MICHAEL S. KRAMER

Despite challenging economic conditions, it is still essential that established and nascent businesses continue to develop and appropriately manage their intellectual property portfolios. Pursuing protection for innovation and even maintaining existing rights might be considered a discretionary expense in the current economic climate. However, disregard of an organization's patent portfolio now has the potential to generate significant lasting effects that may undermine fiscal success under positive economic conditions.

Engaging in strategic shaping of an organization's patent portfolio during the present downturn is important to achieving long term success in protecting innovation and avoiding patent portfolio holes that could leave a business vulnerable to market competitors down the road. Yet, like most business decisions today, the development and maintenance of a patent portfolio

deserves heightened scrutiny to ensure that the greatest potential benefit is achieved consistent with limited or reduced organization resources.

Relative to other aspects of a business, however, portfolio management can encounter complexities that impede characterizing the direction and effect of portfolio decisions, making it inefficient and, of particular concern today, unnecessarily expensive. However, bringing objectivity to the process by using quantifiable metrics and analytical data to shape portfolio development and management strategies can highlight hidden value while reducing portfolio management costs.

Organizations have increasingly been turning to objective approaches to increase efficiency and effectiveness in managing a variety of business processes.¹ Development and management of an organization's patent portfolio can benefit from such an approach. Objective techniques present a highly efficient mechanism that may be used to explore an organization's portfolio and the patent landscape of an industry that is relevant to an organization. The techniques may be applied to drive strategic technology and portfolio development decisions, guide existing portfolio management, identify

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¹ See Thomas H. Davenport and Jeanne G. Harris, *Competing on Analytics: The New Science of Winning*, HARVARD BUSINESS SCHOOL PRESS (2007).

possibly new business opportunities, and focus detailed qualitative assessments within a manageable framework so that they may be carried out with greater efficiency and effectiveness.

Effective portfolio development and management requires a robust process

Effective management of a business process, regardless of its nature or subject matter, calls for measurement of that process in order to assess progress toward organization goals and better understand the effects of strategic and tactical decisions. Development of a patent portfolio and its management are among such processes. Thus, an initial step is to establish the organization's goals for the portfolio that can include tactical and strategic initiatives that may have a short or long term horizon.

For example, tactical portfolio management, including prosecution, maintenance, and foreign filing decisions can yield nearly immediate financial benefits. Tactical management of a patent portfolio is sound practice that should be continuously applied to maintain focus on business objectives and control related costs. Although a tactical management program is an instrument for fine tuning the existing patent pipeline and portfolio, a strategic approach can assist in locating promising innovation to fill and optimize the pipeline and provide significant long term benefits.

Key strategic objectives for developing and maintaining the organization's portfolio can vary in view of various factors, including the maturity of the portfolio and the goals of the organization with respect to the portfolio. For example, maximizing annual royalty revenue might be important for an organization with an established portfolio. Breadth of coverage across a technology field or product category might be relevant where competitive market entry could negatively effect the position of an industry leader. Strategic IP insertion and/or acquisition may be of interest for a young organization or one looking to enter a new market or technology arena.

Regardless of the organization objectives, pursuit of the objectives must be balanced with costs. Costs associated with portfolio development and management can arise from a number of internal and external sources. Some costs are substantially predictable and fixed, such as fees associated with filing and maintaining the portfolio. Other costs, such as costs for preparing and prosecuting the portfolio that can include inside or outside counsel costs are reasonably fixed and predictable but can be controlled to meet objectives by, for example, adjusting the number of filings or shifting focus on filings to reflect the relative importance of a particular patent family or technology.

On the other hand, costs associated with outgoing license fees, joint ventures, acquisitions and patent litigation can be unpredictable. Regardless of source, an effective management program can be configured to assist in increasing predictability and mitigating unnecessary costs, while uncovering opportunities to enhance value.

Establish metrics that capture organization objectives

Once a set of objectives is established for the organization, it is necessary to identify metrics capable of

quantifying the objectives. Metrics useful in management of any process include both the outcome or response of the process as well as the meaningful inputs and drivers to the process. Profits, sales, costs, customer satisfaction, defects, and warranty returns might be indicative core responses of a product line for a business. Likewise, various metrics can be identified that are relevant to the development and management of the organization's portfolio.

An organization may choose to monitor a number of metrics over time, with some tied to long term objectives and others short term projects or goals of the business. Tracking metrics can raise awareness and instill a degree of rigor, through objectivity, in development and management of the portfolio. Importantly, each metric will establish a baseline condition of the portfolio and will demonstrate progress toward reaching organization objectives over time. Each metric must be a measurable indicator of a portfolio objective. An effective metric should be understandable, quantifiable, robust, i.e., insensitive to unrelated ambient conditions, and cost efficient to capture.

Because a metric will serve as the objective evidence of progress toward reaching portfolio goals and ultimately the success of the management process, which may be of a relatively long duration, it is important to engage in appropriate upfront analysis and planning to ensure proper selection. Input should be solicited from individuals within the organization across disciplines, for example, technical personnel, finance, and management, and where applicable, marketing, in-house counsel, and personnel involved in licensing and acquisitions. An organization that uses outside IP counsel should also solicit input from this resource.

Identifying and establishing the appropriate metrics may be straightforward for certain organization goals. Consider a professional baseball team for example, where maximizing winning percentage is a usual objective.² Similarly, maximizing royalty income from a patent portfolio is readily captured by measuring licensing cash flows—metrics that are likely already being tracked by the organization.

Metrics applicable to other organization objectives, however, may not be so readily identifiable nor quantifiable. For example, a baseball organization will also manage a minor league system where it strives to develop key players that will be important to the team's future as well as other prospects that it may use in trades to acquire players from outside the organization. Quantification of these goals is less obvious, but nonetheless critical to maintaining or improving the ability of the team to win in the near and long term.

Similarly, an organization may want to maximize the relative value of its patent portfolio in relation to its competitors in an industry, or an organization may desire to enter into a new product market or include a significant new feature in an existing product platform that may have internal and external patent implications. Although these latter objectives can pose potentially complex portfolio management scenarios, the underlying business goals, and a myriad of other scenarios of this type are routinely faced by organizations of all sizes. A process based in objective metrics and analytics can help to efficiently address these types of situa-

² See Michael Lewis, *Moneyball: The Art of Winning an Unfair Game*, GEO. L.J.W. W. NORTON & Co. (2003).

tions to extract value while mitigating costs of activities that are unlikely to yield sufficient value.

Identify and assess key information that drives each metric

Efficient portfolio management techniques can permit an organization to realize opportunities to enhance existing areas of portfolio strength and identify new or underutilized areas where portfolio weaknesses or opportunities to grow the portfolio may exist. Monitoring key metrics is one ingredient to achieving an organization's business and portfolio goals. For example, although the standings may be an ultimate measure of performance of a professional sports team, the general manager of the team needs more granular information—game-by-game information, individual player statistics, competitor breakdowns, time trends, etc.—to maintain or improve the team's position in the standings.

Additionally, performance generally needs to be balanced with the costs of acquisition. For example, a professional team cannot simply acquire the established best performers. Similarly, the underlying drivers of the metrics that characterize the portfolio should be identified and routinely assessed to build a portfolio valuable to the organization.

Significant responses or metrics in any context are generally influenced by a number of underlying influences. However, it is rare that more than a few of these influences are significant contributors. In other words, significant advancement toward organization objectives can usually be achieved by understanding and focusing resources at any one time on only a few key contributors. The important drivers will of course vary depending on the selected metrics, and, similar to the metrics, they will fall along a spectrum from the relatively straightforward to identify, assess, and control to the complex, and every shade in between.

Value in engaging in this second phase of the process far outweighs any real or apparent hurdles. First, a wealth of information that is useful to the organization and applicable to driving portfolio decisions is found within the identification and assessment of these underlying components. The information is capable of revealing useful correlations, movements, and opportunities that may not be uncovered using conventional portfolio management techniques.

Here, information will be revealed that will drive decision making toward organization goals and address associated questions.

- How can licensing streams be improved?
- Should we develop the new feature in-house or buy from an external vendor?
- Where do we focus technical resources to cover a portfolio gap?
- Are there significant IP barriers to entering a new international market?
- Are there enforcement or cross-licensing opportunities that have been overlooked?
- Are there weak or low-value patents in the portfolio and should their periodic maintenance fees or foreign filing fees be paid?

The process will also yield invaluable competitive intelligence on technical matters applicable to related organization decisions.

Second, identification and assessment of this information is the cornerstone to establishing an efficient

and sustainable objective portfolio development and management process. The actual cost of gathering and analyzing the information can be significantly lower than engaging counsel, internal or external, to perform broad conventional assessments.

Further, the cost of many conventional assessments can be lowered and quality enhanced by using analytical information to focus the scope of the assessment. For example, detailed patent review conducted by patent counsel is generally necessary and indispensable, but the process can be conducted with greater accuracy and efficiency by employing an analytical approach to direct technical experts and counsel to a subset of the most vital patents and patent applications.

Analyze information to inform portfolio decision making

An efficient portfolio development and management process relies on objective information to guide decision making by subject matter experts. The subject matter experts may include inside counsel, outside patent counsel, finance, management, and technical teams. The individuals and organization functions involved will vary depending on various factors, including the objective, scope and duration of the process, and the depth of the organization.

The objective information most relevant to a particular goal will also vary. However, the information will generally comprise data representative of the organization's portfolio and other patent owners and applicants in the same or related fields. The third party information may include competitor and non-competitors and might not include the organization's own data in instances where the organization is exploring entry into a new technical field or geographic region. Also, various limits might be applied to focus on the most relevant information; for example, temporal restraints may be appropriate in mature fields.

The depth of information collected and applied will be driven by the goals and metrics of the particular process. In many instances, relatively high level information can be sufficient for initial screening and to inform certain organization objectives. By analogy, a baseball organization seeking to improve its offensive performance might initially screen potential prospects by position and batting average.

Similarly, high-level bibliographic information of existing patents and patent applications may be utilized to describe a patent landscape of interest and generate fundamental understanding. In other words, in a particular field:

- How many patents are there?
- Are new issues accelerating, constant or decelerating?
- Approximately how many applications are in the pipeline?
- How long have the applications been pending?
- Who owns the patents?
- Are sub-technology groupings prevalent?
- Have particular industry players developed broad and/or focused portfolios?
- What regions of the landscape are crowded while others remain open? etc.

A data set to develop this knowledge may comprise patent and application data within a particular field, time period, or cohort group, and includes filing date, issue date, assignee, technology class, and subclasses.

Various graphical depictions of the data set can provide a clearer picture of the patent landscape within an industry, field, or specific area of innovation. This level of information may already exist within an organization or with outside counsel, but may nonetheless be obtained from a number of patent databases, including free services. As already indicated, substantial knowledge that characterizes the patent landscape can be generated by applying basic analytical tools that are generally available in commercial spreadsheet applications.

These types of data can yield insight on the relative position and strength of an organization's portfolio. Knowledge can also be developed, for example, indicating the breadth and range of competitor innovation. Further, temporal trends can be revealed indicative of whether industry players are up and coming, mature, or ramping down innovation in a particular area.

Additionally, assessment of information in relation to an organization's own portfolio and its technology needs can reveal potential acquisition targets, licensing and cross-licensing opportunities and, importantly, potential portfolio gaps where portfolio development may be valuable and the organization may benefit by refocusing technical teams to generate IP for insertion into those areas of the landscape.

Top line data may be adequate to fully inform some portfolio development or management scenarios. However, many business decisions demand more sophisticated analytics to characterize performance. Increasing the depth of patent data considered can generate additional knowledge that may inform further organization scenarios.

Practitioners have identified various patent attributes indicative of characteristics of patents and patent portfolios.³ These additional data types can include, for each patent within the landscape of interest, the number of prior art references cited, the technology classes of the cited patents, recentness of the cited patents, self citations, number of times the patent is cited by subsequent patents, technology classes of the citing patents, lag and rate of citation by subsequent patents, number of claims, length of claims, and other objective measures.

A sizeable collection of patent data for analysis can be generated at this more detailed level to characterize the patent landscape of interest. However, there are several commercial databases that can provide convenient and efficient data acquisition and even certain analysis capabilities.

Assessment of the more detailed information can yield additional insight on the direction of a patent landscape of interest and reveal a deeper understanding of innovation and industry trends. For example, industry leaders versus followers can be identified, technology migration vectors uncovered, and potential patent thickets revealed.

³ See generally John R. Allison, Mark A. Lemley, Kimberly A. Moore and Derek R. Trunkey, *Valuable Patents*, 92 GEO. L.J. 435, 436-38 (2004) (discussing the high correlation between valuable patents and litigation); Jonathon A. Barney, *A Study of Patent Mortality Rates: Using Statistical Survival Analysis to Rate and Value Patent Assets*, 30 AIPLA Q.J. 317, 320 (2002) (describing an objective method of rating and valuing patents based on abandonment rates of patent with similar characteristics).

The information can also be applied to generate characteristics indicative of patent and portfolio quality and relative value of each in view of the industry landscape. The techniques for generating these characteristics is beyond the scope of this article. However, various services and resources exist that can guide an organization in developing and employing the characteristics. For example, metrics indicative of relative patent and portfolio valuation can be generated using objective data.⁴

Applying knowledge to achieve organization goals and monitoring performance

With objective analyses providing an understanding of the patent landscape of interest in hand, the organization is prepared to engage an action plan to achieve its portfolio development and management objectives. Detailed review of patents and applications by patent counsel and/or appropriate technical personnel is likely necessary at this stage.

Although objective data alone cannot shed light on important qualitative aspects of individual patents and patent claim scope, the steps taken to reach this stage can be applied to define a qualitative analysis that may be focused on a subset of patents and patent applications of interest. The process may also uncover patents and opportunities that may not have even been recognized when employing conventional techniques.

Importantly, particularly in lean economic times, the result should be a highly defined analysis that may be carried out efficiently, and which otherwise could be time consuming for internal personal and potentially expensive if outside counsel is engaged. The detailed analysis can also be more effective, as greater attention can be devoted to the most relevant patents and applications of interest.

Consider a simplified example, where an organization looks to add a significant new feature to an existing product platform with minimal cost of acquisition and potential infringement exposure. The objective analyses reveal a patent landscape where the new feature is still evolving in the industry and, although a number of small and large players have obtained IP rights pertaining to the feature, there is still opportunity to define and protect aspects of the technology, and in particular, how it can be integrated in similar product lines.

Thus, the organization could consider various scenarios such as focusing resources to develop the feature in-house where it might also develop a portfolio surrounding the feature, purchasing it from an established competitor, or perhaps partnering with an up and coming entity with a developing but valuable portfolio in the field through a cross-license, acquisition, or other agreement. The ultimate course of action will turn on a number of factors, including intellectual property rights.

The objective analyses can efficiently identify and isolate these opportunities, concerns, and importantly, key intellectual property for detailed analysis by counsel and/or technical personal. Like the objective assess-

⁴ See, e.g., Michael S. Kramer, *Valuation and Assessment of Patents and Patent Portfolios Through Analytical Techniques*, 6 J. MARSHALL REV. INTELL. PROP. L. 463, 466-67 (2007) (describing techniques for valuing patents and patent portfolios using objective patent data).

ments, the follow-on analysis further informs organization leaders on preferred courses of action.

Depending on the direction selected, an organization can identify additional metrics that establish a baseline, and monitor over the life of the program, to further guide portfolio development and management decisions. For instance, assuming the organization above decides to develop the feature in-house, a number of metrics could be established around the patent generation and portfolio management process to monitor maturity of the portfolio within the organization, including landscape coverage.

Obviously, tactical preparation and prosecution costs can also be monitored and managed in light of the patent landscape and organization goals. Over time, however, the objective techniques can be applied to monitor and inform more sophisticated strategic concerns, including relative portfolio and patent value that can in turn inform strategic filing and licensing decisions concerning the portfolio.

Conclusion

An organization that applies an efficient approach to developing and managing its patent portfolio may obtain a particular advantage over its competitors in these troubled times. A patent portfolio can represent a substantial investment for an organization that may also be critical to market success.

Accordingly, like many significant business practices today, it is appropriate to establish a robust process for developing and managing the investment. Although conventional techniques can be prohibitively expensive, an objective approach can be efficient and provide unique insight into a number of portfolio decisions. A continuous process that utilizes quantifiable metrics and objective analytics can allow an organization to efficiently focus resources on the vital aspects of developing and managing a winning portfolio. This focus should ultimately improve quality and yield more effective patents at an overall lower cost to the organization.