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**Application of Multiple Known Determinants
to Evaluate Legal, Commercial and Technical
Value of a Patent**

by Andy Gibbs

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Abstract

Statistical modeling of patent data became popular during the 1960s when patent counts and frequency of occurrence of certain patent indicators were proven as reliable predictors of economic, legal and technological behaviors of patents. Since then, especially with the advent of the personal computer in the early 1980s, a growing body of patent research by dozens of government, academic and research organizations has been built on a number of computer models such as multivariate regression, econometric, citation and bibliometric analysis of patents. Some overlap has occurred between various research projects, but the methodology underlying each project was intended to prove a discrete theory, or discover a narrow relationship in support of a particular objective. Analysis of discrete patent indicators provides an incomplete picture of patent value. Technology Adoption / Diffusion curves (S-Curves) introduced during the 1940s illustrated a positive correlation between the diffusion of a new technology and its embrace by subsequent adopters, and the economic importance and value of that technology. Notwithstanding the success of these empirical studies, practical application of patent indicators in a contemporary high technology business environment demands that attention be paid to these data in the aggregate. When the studies are compared, three primary factors emerge as key determinants of a patent's value: (1) legal factors, (2) commercial factors, and (3) technology factors.

PatentCafe.com has developed its newest generation patent valuation tool called the [**ICO Patent Factor Index Report**](#). This paper discusses the process of aggregating previous research into a single patent valuation report, while presenting arguments against single-score patent value reports that fail to acknowledge the complex and variable factors that exist within the context of real-world business, technology and legal environments.

Introduction

In an age where patents have become the material equity core of an enterprise, managers are being challenged to become all in one patent-business-technology experts in order to understand intrinsic patent value and generate revenue. Enterprises are disserved when managers eschew the daunting task of becoming the resident all in one. Without broad knowledge and experience in patent valuation, they rely on software tools or third party services to quantify a patent's value, and accept at face-value a single "score", or a (\$) dollar value analysis that the software or service computes.

As dangerous as this practice is, it's also somewhat understandable – at least until a solution is provided by which they can in fact intelligently assess the disparate legal, commercial and technical attributes of a patent, and draw informed, business critical conclusions on the value of the combined patent factors.

Patents have been referred to as the most complex legal documents that exist. Patents define the legal boundaries of an innovation that the owner intends to exploit in commerce in order to create economic value. These three primary determinants are collective and interactive indicators of patent value: (1) legal factors; (2) commercial factors; and (3) technological factors.

In 1965 Frederic Scherer published his study that tied patent data to innovation, launching a forty-year race by economists to develop ever more predictable methods of analyzing patent indicators to determine economic value. As Trajtenberg, Jaffe and Hall (2000) observed, there have been many patent research programs conducted over the last four decades in an ongoing effort to quantify innovation, but one of the major drawbacks, extremely valuable as they had been, was that they relied exclusively on simple patent counts as indicators of some sort of innovative output. However, it has long been known that innovations vary enormously in their technological and economic "importance", "significance" or "value", and moreover, that the distribution of such "values" is extremely skewed.

Even the best methods employed by enterprise to maximize patent value are imprecise at best, and similarly complex. Today's managers are challenged to balance the assessment of all three factors, simultaneously, acknowledging that the determinant "value" of each factor can be arguably inverted as required to support a changing set of business objectives.

While serving as a Fortune 100 Business Development EVP, the author found that identifying the most valuable patents and products for acquisition or in-licensing required the assessment of all three patent factors, the critical foundation for SMART¹, his first innovation evaluation model that balanced innovation assessment using interrelationships between various patent factors.

Not surprisingly, this multiple factor analysis echoes the value creation process the author followed as a product development guideline during his more than 25 years as an inventor.

But legal, business and technology experts inherently weight patent factors differently – even though value maximization occurs only when all three factors positively converge. Veritably, patent attorneys will put more value on the patent legal factors such as claim scope, invalidity risk, and so forth. On the other hand, the technologist will more narrowly value a patent based on technical attributes, while the business professional will more broadly correlate patent value to the commercial opportunities that the patent helps create (Chart A).

"Valuation" by different experts will be computed quite differently, even though they would all be evaluating the

1 System and Method for Adaptive Relational Testing (SMART™) technology consolidates critical, interrelated components of the line-item invention assessment points ... mathematically balances them to deliver a more accurate picture. Rating charts are not scores ... relative to a precise collection of evaluation points that make up that individual rating. A general rating is not a precise score, and is calculated using a variable number of interactive, related business, financial and legal components, along with a set of underlying assumptions that are not shown. (A. Gibbs, 1996)

identical patent. Different subject matter experts working together toward the same general objective would be unable to agree on a single rating system applied across the three patent factors that would adequately address the outside influences on patent value known by each legal, commercial or technical expert.

Nevertheless, the pursuit of methods to establish calculable patent value continues. The correlation between patents and economic value is well established. Early studies on patent data (Griliches, 1981) identified a positive correlation between R&D and the financial measures of a firm's performance. Since that time, dozens of large-scale patent data studies incorporating computer modeling, regression and patent citation analysis have and continue to reinforce the correlation between patents, technology, and innovation value.

As an example, patent citations have been proven to be consistent and seemingly reliable metrics upon which one may base patent value. However, because of the constraints of econometric or empirical modeling of patent data, only very narrow analysis of specific components that contribute to overall patent evaluation are carried out – with intentional exclusion of other interactive components that may skew the results of a controlled study.

To illustrate this point, patent citations have been separately correlated to patent novelty (Hall, Jaffe & Trajtenberg, 2004), claim scope (Lanjouw and Schankerman, 1997), and (Criscuolo, Genua and Verspagen, 2004), and survivability to opposition (Reitzig, 2003). I will discuss the significant benefits and shortcomings of these restricted studies later in this paper.

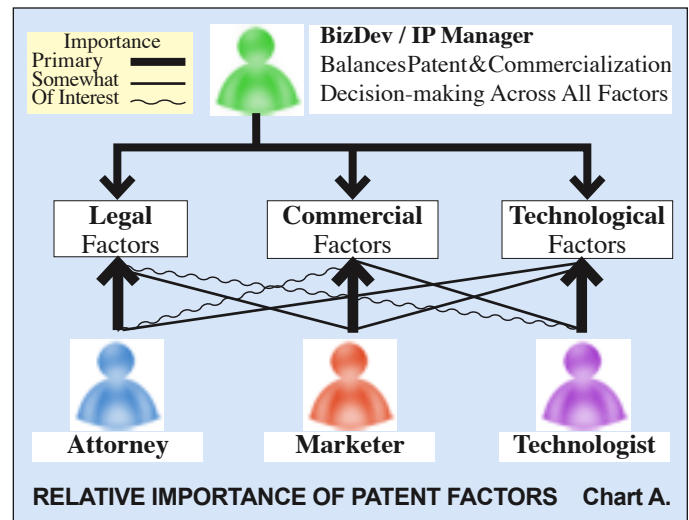
But even before the tide of patent data modeling got underway, technology valuation was developed upon the theory that the societal and business value of a technology correlated to the degree with which the technology was adopted by, or diffused into growing commercial markets. Adoption - diffusion curves, or S-curves provided a means to visualize the points within a technology lifecycle where maximum value could be realized (Ryan and Gross, 1943). Continuing research into technology diffusion theory has resulted in the discovery of new aspects of technology development and adoption that drive new ways to extract economic value from innovation.

Independently, each study conducted under controlled conditions draws conclusions that support a particular hypothesis based on specific set of patent indicators, those conclusions being of interest to varying degrees to legal, business or technology professionals. Yet individually, these studies are incapable of teaching a clear approach to technology or patent exploitation that can be practically deployed within an enterprise.

Observation subsequent to my development of the SMART model has reinforced the fact that innovation value analysis traverses across the various patent factors, and cannot be computed on a single set of indicators at the exclusion of others. This paper builds on my previous evaluation solution, and discusses the integration of additional studies into a more contemporary patent valuation model – the ICO Patent Factor Index Report².

Single-score Valuation - Ignis Fatuus

Aristotle observed; “it is the mark of an educated mind to expect that amount of exactness which the nature of the particular subject admits”. Conversely, applied to patent valuation, one may conclude that only an uneducated mind would expect a patent analysis report to return the precision of a defined economic value (dollar amount) or a singular rating that disregards the complexity and dynamic nature of patent valuation.



2. ICO Patent Factor Index Report is an online patent analysis solution available at <http://www.IAMcafe.com>

The many factors contributing to patent value not only include the legal, commercial and technology metrics, but reliable patent value, if it can actually be calculated, must also consider factors lying outside the scope of bibliometric patent data. Time variables, the investment level promoting the product protected by the patent, a changing legislative landscape, evolving technology, and a host of other very real legal, business and technology influences further prove the inability to control the variables or define the exactness of a single patent valuation method.

For instance, patent value traditionally declines as the end of a patent term approaches, ending in zero patent value once the patent expires. However, patent value could be continually increasing throughout its life if the product it protects continues enjoying rapidly expanding sales and market share capture. Conversely, increasing value could be abruptly terminated if a successful invalidity challenge is mounted, if the product becomes overly regulated (or banned) in the marketplace, or if a competitor introduces the next generation of technology that obsoletes the patented technology.

A single score may also project a false patent value. An algorithm attributing a lower value or score to patents containing a high number of backward citations (which limit novelty)³ cannot self-adjust the score to account for a high volume of citations that reflect a large market potential⁴, or account for a smaller number of backward citations that increase the likelihood of patent litigation⁵.

Clearly, a single patent score, rating or dollar value based on any statistical method will inadequately, or more often inaccurately determine the actual patent value. “Single-score” reports therefore cannot provide a consistently reliable basis for predicting patent value.

But even acknowledging the shortcomings of single-score reports, when the analyst understands that the counter effects of various indicators within a single-score rating model, the “black box” computational mechanisms provide little opportunity for an analyst to adjust formulas based on specific knowledge, assumptions or changing objectives.

The statistical analysis of patent value must therefore allow for human input, or at least human adjustment to a score based on their subject matter knowledge, skill and experience. An actionable report not only contains an array of algorithms and ratings for the many discrete indices, but must also be presented with the transparency necessary for the analyst to adjust any score based on their tacit knowledge of the subject matter, their preferred assumptions, or to support their business, legal or technology research objectives.

Latent Semantic Analysis

Empirical studies of patents begin with a control group – a collection of like-catalogued patents upon which the analysis will occur. Traditionally, these patent collections have been patents grouped by a particular patent classification, patents that have been litigated, patents contained within a patent family, and so forth.

The ICO Patent Factor Index Reports similarly require a patent collection against which to analyze a particular patent, but splits from traditional methods on how collections are specified.

Any manually defined patent collection based on standardized patent data fields only provides half the picture. Factors that effect patent value include (a) un-cited prior art that could invalidate or weaken the subject patent;

3. Citations limit the scope of the inventor’s claim for novelty and in principle they represent a link to previous innovations or preexisting knowledge upon which the inventor builds. (Criscuolo 2003)

4. Backward citations to the patent literature or the family size operationalize a patent’s value in that they are correlated with non-technical economic features of the property right. (Reitzig 2003)

5. “we find that a litigated patent is likely to cite fewer prior patents per claim than a randomly selected patent” (Lanjouw and Schankerman)

(b) concurrent art – patents co-pending during the prosecution of the subject patent, (c) patents in different classifications disclosing similar devices, methods, processes or systems, but invented as completely different solutions for different problems in an industry different from the subject patent. Identifying relevant patents outside of traditional data field selection is itself a research project that typically requires days or weeks of patent evaluation and manual grouping, the process applied to rapid analysis of individual patents is economically unjustifiable.

Therefore, one of the first operations to create an “on-the-fly” patent collection within PatentCafe’s US patent database⁶ is a Latent Semantic Analysis (“LSA”) search comprised the full claims text of the subject patent being evaluated. LSA is a method for extracting and representing the contextual-usage meaning of words by statistical computations applied to a large corpus of text⁷.

By developing a patent search results set using LSA, a collection of the most closely related patents is developed. Until the application of LSA to patent data, the ability to analyze patent valuation based on technology spill-over, technology adoption – diffusion, highly relevant un-cited prior art and concurrent art was simply not practical.

Control groups of patents required for traditional bibliometric analysis fail to uncover factors such as patent validity, adoption – diffusion S-curves, or packaging of similar but differently classified patents within a portfolio, all of which may synergistically contribute to increased real world value of the patents collection within the portfolio.

The use of LSA in developing certain indices incorporated in the ICO Patent Factor Index Reports helps provide insight into patent value determinants previously unavailable in a machine-generated report.

Patent Legal Factors

Legal factors contribute to patent value. The Patent Factor Index Report assesses the legal factors as a separate report component. Since any single legal factor could contribute to either a higher or lower patent value, depending on the perspective of the analyst or when considered against other factors, it was important to score each legal factor separately, thereby giving the analyst the ability to reverse the scoring method if required to support their present objective.

Most obviously, patent enforceability determines whether a patent can even be asserted. A patent is enforceable if it is still within its patent term, and assumes that all earlier maintenance fees were timely paid. The Patent Term is the expiration date of the patent based on the US filing date of the first non-provisional patent application in a chain of filings.

The Patent Factor Index Report separately scores key patent legal factors: enforceability, novelty, claim scope breadth, validity confidence, sustainability in opposition proceedings, and litigation avoidance, all critical determinants of patent value. Assumptions of decisions made on any one factor apart from considering the others could be the fatal flaw in preparing an investment, litigation or licensing opinion.

Additionally, it uses the patent claims to perform an LSA search, compares the relevancy ranking of the subject patent against the top 100 most relevant, and determines a score for total relevancy strength, a broad indicator of novelty and scope.

The difficulty in trying to attach a single score to a machine-based patent analysis is that the very indicator that

6. PatentCafe’s US patent database used for Patent Factor Index Reports contains bibliographies and full text of 2.954 million patents issued between 1972 and present, updated weekly. (<http://www.iamcafe.com>)

7. “The adequacy of LSA’s reflection of human knowledge has been established: (a) LSA scores overlap those of humans on standard vocabulary and subject matter tests; (b) it mimics human word sorting and category judgments; it simulates word–word and passage–word lexical priming data; and, (c) it accurately estimates passage coherence, learnability of passages by individual students, and the quality and quantity of knowledge contained in an essay.” (Landauer and Dumais, 1997)

supports a higher value in a given condition, can be the same indicator that devalues the same patent given a different set of conditions. Each factor therefore must be scored and reported separately, and the analyst must be given the opportunity to adjust the score based on their own knowledge, objectives and conditions.

For instance, it's been shown that backward citations correlate negatively to patent novelty⁸. Naturally, the results of this study reinforce our belief that the more limited the patent novelty, the lower the value of the patent, and the lower score it would earn.

However, this hypothesis conflicts in part with other studies that positively correlate a large number of backward citations to the economic value of a patent⁹.

Every issued patent is exposed to the risk of invalidity, although some more than others. Assessing invalidity potential has historically required a skilled patent researcher to spend considerable time identifying patents that could potentially invalidate a patent. Relying solely on highly skilled professionals, the high cost of invalidity analysis for all but high risk or highly contentious patents is economically prohibitive.

Using LSA as the patent researcher proxy with intrinsic subject matter knowledge, the Patent Factor Index Report identifies highly relevant patents that were co-pending with the subject patent. These patents are considered concurrent art since they were not available to the examiner during prosecution, and therefore do not cite one another. Earlier filed concurrent art may contain "silver bullet" prior art to support an invalidity challenge.

Once again, relying on the LSA search results to identify highly relevant (closely related) patents, the Patent Factor Index Report calculates a subset of search results that constitute a collection of un-cited prior art (Chart B), the most common basis for court decisions to invalidate patents¹⁰. These documents satisfy two criteria: (1) the documents were filed earlier than the subject patent, and (2) they rank higher in relevancy than the subject patent itself when the search query was comprised of the claims text of the subject patent.

Patent Prior Art Citations for Patent No: US 5975893			
Backward Citations	Forward Citations	UN-cited Prior Art	UN-cited Concurrent Art
FR: 2369628	US: 6227851	US: 4650417	US: 6116905
US: 3660900	US: 6299440	US: 3971133	US: 6139321
US: 3860803	US: 6315553	US: 4919612	US: 5727944
US: 4504225	US: 6318995	US: 4580975	US: 5732721
US: 4505673	US: 6350120	US: 4834656	US: 5785526
US: 4755139	US: 6371761	US: 4708649	US: 6422864
US: 4798534	US: 6386864	US: 5338190	US: 5772438
US: 4856991	US: 6386878	US: 5201657	US: 5692894
US: 4936862	US: 6394801	US: 5545480	US: 5827063
US: 5011405	US: 6488499	US: 4721466	US: 5722832
US: 5017133	US: 6497574	US: 4591341	US: 6231342
US: 5035613	US: 6499997	US: 5213498	US: 5989029

Chart B.

Litigation, or more precisely the outcome of an infringement proceeding, impacts patent value. If a patent is likely to lose in litigation, the prospect of litigation can minimize patent value. On the other hand, if a patent protects a very large market, and survives litigation, its value is appreciably increased. In either case, an analysis of patent legal factors can ascertain whether there is a significant probability that the patent will be subject to litigation that will effect the value of that patent¹¹.

The Patent Legal Factor assesses the probability of the subject patent being litigated by comparing forward citations and claims counts of the 100 most closely related patents.

8. "Citations limit the scope of the inventor's claim for novelty and in principle they represent a link to previous innovations or preexisting knowledge upon which the inventor builds. When an inventor cites another patent, this indicates that the knowledge contained in the cited patent has been useful in the development of the citing patent." (Criscuolo 2003)
9. Backward citations to the patent literature or the family size operationalize a patent's value in that they are correlated with non-technical economic features of the property right. (Reitzig 2003)
10. Evidence in various patent litigation studies suggests that un-cited prior art - prior art that was not before the patent examiner - is the most common basis for court decisions invalidating U.S. patents. It would seem to follow that fewer prior art references in patents would tend to decrease the probability that they would be held valid if challenged in court. (Allison and Tiller)
11. One additional forward citation per claim raises the probability of an infringement suit by 8.1 percentage points, or 22 percent. A one standard deviation increase in forward citations per claim raises the probability of litigation by 35 percent. These findings confirm the importance of the value of a patent in determining infringement suits. (Lanjouw and Schankerman, Revised March 2000)

The objective of evaluating each legal factor dictates which valuation methods should be employed during the valuation of a patent.

The Patent Legal Factors indicate the underlying statistical approach used to determine each score. The analyst may invert the scoring approach if their objectives or assumptions are intended to derive the value based on an inverse set of conditions.

Patent Commercial Factors

The patent licensing industry recognizes six popular methods of establishing patent value¹², and within each method, a multitude of formulae are used in an effort to derive a definitive economic value of a technology.

These approaches to financial valuation can be used by accounting and financial professionals to estimate infringement damages, or for calculating intangible asset value for tax, stakeholder, or other reporting purposes.

(Marco 2003) argues that patent value presupposes an enforcement right, but that the enforceability model is imperfect and unpredictable¹³. This approach to patent valuation tends to shift the valuation theory from the underlying technology towards the legal analysis including validity, novelty and claim scope. Marco's analysis therefore suggests that there is value only when a patent may be confidently asserted against infringers (enforcement licensing), leaving one to incorrectly surmise that there is little value in opportunity (carrot) licensing.

“Real” patent value, at least in the licensing realm, is ultimately determined by royalty collections. Theoretical value based on enforcement potential does not identify potential licensees or licensing opportunities, evaluate relative value of a single patent when combined in a larger portfolio, or to identify patents that may be of in-licensing interest, all of which are real-world components enterprises use to build a royalty stream.

The Patent Factor Index Reports analyze patent search results and bibliometric data to determine forward citation value contribution, backward citation value contribution, enforcement licensing potential, partnering licensing potential (cross-classification), crowdedness (potential licensees), divestiture licensing premium (patent groupings), patent group competitive position, and in-license opportunity.

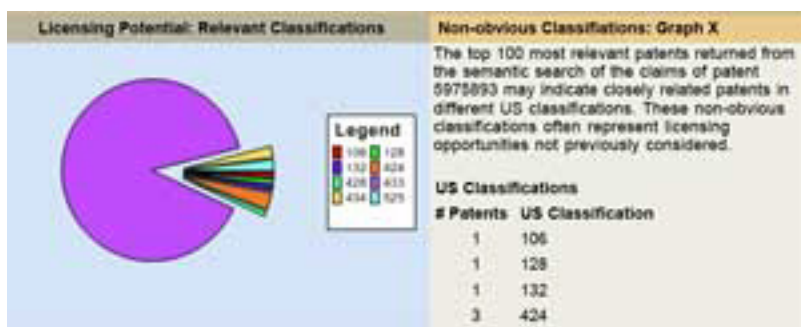


Chart C.

From a practical standpoint, ICO Patent Factor Index Reports identify non-obvious patent classifications of the most closely related patents, indicating potential licensing opportunities into product or industry segments not traditionally considered for the subject patent (Chart C).

As discussed earlier, any single patent indicator may have either a positive or negative impact on patent value depending on the objectives or

perspective of the analyst. Such is the case with patent commercial factors wherein the analysis of a single metric can identify commercialization opportunities – or risks, or can base a value contingent upon the outcome of the analysis of a different set of factors.

12. Six methods of establishing patent licensing value are (i) Use of Industry Standards; (ii) Rating/Ranking; (iii) Rules of Thumb (iv) Discounted Cash Flow; (v) Monte Carlo Method; and (vi) Auction Method (Razgaitis, 2003)

13. “, the value of a patent is a function of the enforceability of the property right” (Alan C. Marco 2003)

For instance, the number of forward citations that a patent receives correlates positively to patent value. In fact, there is a non-linear correlation that can result in a value premium of more than 50% when compared to closely related patents¹⁴. Keep in mind that while a patent with a disproportionately high number of forward citations may carry a value premium, it is very likely that the premium value will be realized only through enforcement licensing or litigation¹⁵. When related to the patent technical factors, a high forward citation count positively correlates to higher technical sophistication as well¹⁶, thus identifying as potential licensees the owners of patents that have cited back to the subject patent.

Forward citations are but one patent indicator used to assess patent commercial value. Similarly challenging relationships between technical, legal and commercial factors are found when analyzing backward citations, uncited prior art, crowdedness, patent groups, and a multitude of other data sets.

It's easy to see that the number of interrelated analyses within each of the various patent commercial factors can grow exponentially, reinforcing the elusive nature of reducing a patent analysis down to a single score or rating. This applies to both human and machine analysis.

Theoretical models serve to validate hypotheses, but analytical tools that compute and convey patent value in business must fix certain assumptions as a practical means upon which to model various scenarios that managers may apply in daily enterprise operations.

Patent Technology Factors

As the third critical patent factor, patent value presupposes that the underlying technology is important. The theoretical literature has assumed that certain latent variables should affect patent value: patent duration, novelty, nonobviousness, breadth, disclosure, difficulty in inventing around, and dependence on complementary assets. It's been noted (Reitzig, 2003) that three of these variables fall into the category of legal factors, but inventing around and dependence on complimentary assets show us once again that the analysis of technology factors cannot proceed without acknowledging the relationships between technology, commercial and legal factors as a whole.

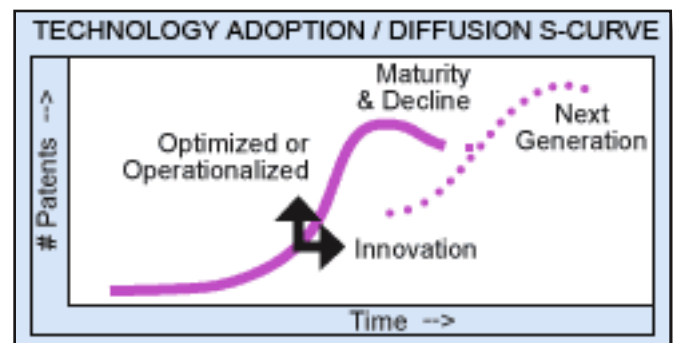


Chart D.

without acknowledging the relationships between technology, commercial and legal factors as a whole.

ICO Patent Factor Index Reports apply empirical methods to evaluate four key patent indicators that contribute to patent value: (i) level of technological advancement (Criscuolo, Geuna & Verspagen, 2004, Trajtenberg, 2000); (ii) technical sophistication (Fleming and Sorenson, 2004); (iii) combinatorial accession (tied to diffusion) (Ikovenko, 2003); and (iv) gency.

For the first time, the Patent Factor Index Reports demonstrate the capability to chart adoption / diffusion S-curve data, characterizing the technological importance of the present patent against the generational time line of the technology as defined by the most closely related patents.

S-curves analyze the speed at which a technology is adopted not only within the field that spawned the technology, but also across unrelated sectors of society, industry and commerce. Important technologies "diffuse" more quickly than technologies of lesser importance.

14. "The value of high citation intensity is disproportionately concentrated in highly cited patents: firms having two to three times the median number of citations per patent display a 35% value premium, and those with 20 citations and more command a staggering 54% market value premium." (Hall, Jaffe and Trajtenberg)
15. "Further, a high level of similarity between a patent and its forward citations are more likely to be litigated." (Lanjouw & Schankerman, 1998)
16. "citation counts offer a means of measuring inventive usefulness across a broad range of technologies." (Fleming and Sorenson, 2004)

In the traditional method of empirically studying patent data, a collection of related patents is created using LSA. Patent classifications have proven unreliable as a means to group related patents, so researchers are turning to patent search engines to identify patent groups. This approach has been shown to be problematic (Mann, 1999) since Boolean keyword searches fail to uncover related patents with any reliability or efficiency¹⁷.

Technologies that more rapidly diffuse solve more problems, generate more commercial opportunities, and operationalize the innovation. Higher value is attributed to the more highly diffused technologies.

By observing a patent's S-curve, one can determine where within the technology lifecycle a particular innovation occurred. Early, immature innovations (deemed important to society) will appear toward the front of the curve, at the point where the S-curve begins to rise rapidly. Innovations that operationalize the innovation by introducing more subtle refinements or functionality to the core invention, will appear higher on the curve, representing lesser value as illustrated in (Chart D).

Therefore, to determine the technological value, one must chart a generational curve or set of curves of patents in related technologies, and determine whether the present technology lead an innovation trend, or whether it was simply a small refinement late in the product or technology lifecycle (Chart E).

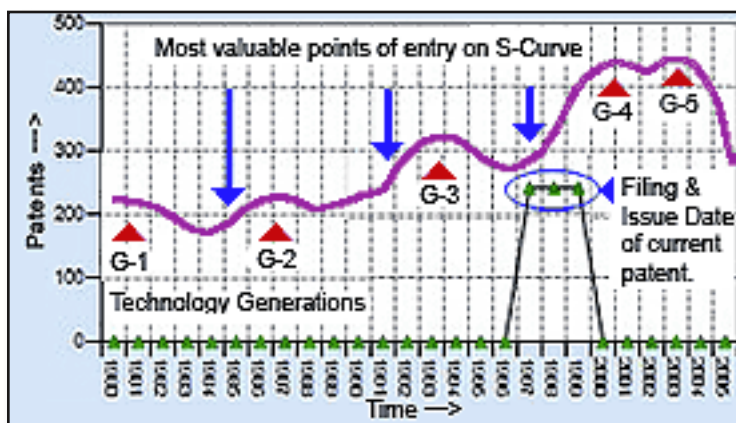


Chart E.

Determination of the importance of the innovation therefore lays the basis for patent technical value.

As a technology matures, it may be combined with, spawn, or be reconfigured into new technologies or products. As a result of the improvements or natural growth of a patent into subsequent innovations, there is a corresponding increase in the value of the property.

This condition, which the author refers to as "Combinatorial Accession", is often represented on the S-curve as a series of curves, or generations of technology.

Combinatorial Accession correlates positively with a substantial increase patent value. The concept of combinatorial accession has been referred to by a variety of terms. Fleming and Sorenson (2004) use *coupled technologies*, Milgrom and Roberts (1990) refer to it as *complementarity*, Kauffman (1993) and Sorenson (2002) call it *interdependence*, Ikoenko (2003) refers to it as *mono-bi-poly*, Varian (2003) calls it *coevolution of technology*, and Baldwin and Clark, (2000) call it *modularity*. It's also been loosely referred to as *parallel invention*, although this more accurately describes the same invention occurring simultaneously in different technology or industrial sectors.

When a patent undergoes Combinatorial Accession, it has the effect of catalyzing the new invention with previously unobvious devices, methods, materials or systems to yield new innovations. Given that subsequent innovations build on the subject patent, thereby broadening the commercial value of the property, Combinatorial Accession becomes an important indicator of patent value.

ICO Patent Factor Index Reports determine Combinatorial Accession by analyzing the most closely related patents (using LSA), and tabulating the patent classifications of those relevant patents with issue dates subsequent to

17. The main problem here, however, relates to the eventual relevance of the patents emerging from the search. A search of the US patent database using the word 'compressor' will produce several thousand patents only a small proportion of which will have anything to do with refrigerant compressors. Even a search of 'refrigerant compressor' patents, however, still proved to be largely inadequate; producing over 440 hits, of which, less than half eventually turned out to relate directly to the refrigerant compressor problem under analysis. (Mann, 1999) (Emphasis added)

the subject patent. If a high number of patent classifications different from the subject patent appear in the 100 most relevant patents, then the author argues that the underlying technology has been combined with other innovation components, and has created premium value.

Conclusion

Innovation is the contemporary driver of asset value within an enterprise. Consequently, the adoption of systems and processes to analyze patent value, or to maximize the economic value of future innovations is becoming an economically driven necessity.

Until such time as machine intelligence sufficiently advances to the point where the huge set of variable patent indicators can be simplified to a single score, or develop the critical thinking that will result in a single conclusion, enterprise managers will need to rely on analytical tools that model patent valuation by assessing smaller, discrete sets of patent data. Human analysis of the data will still be required.

ICO Patent Factor Index Reports that rely heavily on LSA search technology represent a significant advancement in the analysis of the three critical factors contributing to patent value: legal, commercial and technological indices. LSA's human-like analysis of large volumes of patent data is the first economically viable advancement in patent value analysis.

Rather than replacing human analysis, ICO Patent Factor Index Reports deliver the baseline patent scores, and for the first time dynamically generated S-curves, identifying the most important indicators of patent value.

Patent Factor Index Reports are comparatively transparent, provide actionable business and legal information, and provide the means for skilled legal, business and technology professionals to interject their own subject matter expertise to establish patent value that more practically reflects the economic and business realities encountered in real world business operations.

ICO Patent Factor Index Reports serve as the bridge between legacy patent analysis systems and the next generation, machine intelligent patent value analysis solutions.

Patent Factor Index Reports may be generated at www.IAMcafe.com

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