From:
Sent: Friday, March 05, 2010 7:09 PM
To: patent_quality_comments
Subject: IBM Comments in response to the Request for Comment on Enhancement in the Quality of Patents

Dear Sirs:

Please find attached IBM Corporation's comments in response to the Federal Register Notice.

Regards,

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March 5, 2010

Via Electronic Mail
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Mail Stop Comments - Patents
Commissioner for Patents
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Attention: Kenneth M. Schor and Pinchus M. Laufer

IBM Corporation Comments in response to "*Request for Comments on Enhancement in the Quality of Patents*", 74 Fed. Reg. 65093 (December 9, 2009)

IBM fully supports the continuing commitment of the United States Patent and Trademark Office to improve patent quality. We thank the Office for the opportunity to provide our views regarding the assessment and enhancement of the patent procurement process. IBM agrees with the Office's view that improving the processes for preparing, prosecuting, and examining applications will promote issuance of high quality patents and enhance the efficiency of the patent procurement process.

IBM believes that a strong patent system is built upon high quality patents. We recognize that patent quality encompasses several aspects, including 1) novelty and non-obviousness of the claimed invention, 2) full support and enablement of the claimed invention in the specification, and 3) clear, unambiguous claim meaning. IBM also recognizes that improvement of patent quality requires focus at all stages of the patent application lifecycle, including the application as filed, Office communications, applicant communications, as well as evaluation of the roles and actions of both the applicant and the Office.

Our comments and proposals thus cover a variety of areas we believe are important for enhancing patent quality, set forth below in response to the Categories in the Request. Our comments are directed to Categories 1, 4, 5, and 6, with relevance in some instances to other Categories as indicated.

Category 1 – Quality measures used

The Patent Quality Index project (PQI)

IBM initiated PQI in late 2005 to create metrics that could be used to evaluate the quality of patents, patent applications, and the patent procurement process. We believe that in order to improve patent quality, metrics are needed to determine what aspects of the process are problematic and need improvement and similarly what aspects work well and should be emulated. The appropriate metrics should evaluate characteristics reflecting how well the statutory requirements for validity are met, including for example strength and accuracy of applicant and examiner search, sufficiency of support provided by the specification for the claims, and effectiveness of office actions. We refer the Office to the parallel submission on PQI in response to the Request by the US project leader, Prof. Ronald Mann of Columbia Law School.

Preliminary results indicate that certain characteristics of patents and applications are associated with validity in a statistically significant manner. For example, if claims are "closer" to the description in the specification, they are more likely to be valid. Improvements in this area should promote patent clarity and enable easier examination. In addition, a number of characteristics relating to applicants' and examiners' identification of prior art and its use to evaluate claims in examination are tied to validity. Identification of those sources of art most likely to lead to substantive examination and valid claims should help applicants and the Office ensure that the best prior art is considered during examination. The relationship and significance of these and other characteristics to patent validity may vary over time as innovation and patent law evolves, and as a result of awareness of the characteristics themselves. However, continued focus on optimizing the process for procuring patents by identifying and evaluating objective characteristics will lead to a better understanding of the process and thus enable applicants and the Office to make improvements.

PQI is also relevant to Category 6, "Tools", as it could provide the basis for automating evaluation of the quality of patent applications and the examination process, and Category 2, "Stages of Monitoring", as it seeks to identify critical steps in the examination process affecting validity.

Claim Clarity Through the Use of Claim Dictionaries

(The following section is also directed to Section V (2): Specific Areas of Particular USPTO Interest, Comprehensive Initial Application)

IBM believes that patent quality would be significantly enhanced by improving the clarity of patent claims. Under current U.S. patent law, applicants must present a written description, or specification, in their initial patent application that supports and provides antecedent basis for the claims. Applicants may assign a specific or unconventional meaning to any claim term by clearly defining it in the

specification. Conversely, for those claim terms having known conventional meanings in the state of the art, applicants may leave those terms undefined in the specification, choosing instead to rely on their ordinary meanings. Under this scenario, examiners must also rely on those ordinary meanings to determine the claims' true meaning and scope during the examination process. Unfortunately, claim terms do not always have a single meaning in the state of the art – and even when they do, those meanings often evolve over time to different or broader meanings. After an applicant files a patent application, it may become more difficult over time for the examiner, and later the public, to determine the true meaning of claim language at the time of filing. While the examiner is constrained to give claims their broadest reasonable interpretation during prosecution, given the challenges presented by multiple and evolving meanings, there is no means for the public to discern the claim interpretation applied by the examiner unless it is documented in the prosecution record. Accordingly, we propose the use of controlling dictionaries to establish, document, and maintain a clear literal meaning for claims at the time of filing to improve patent clarity and thus quality.

Under our proposal, the USPTO would designate one or more publicly available technical dictionaries (in addition to dictionaries, treatises may also be designated if necessary) for each technology center (or other level of granularity) within the USPTO, and list them on its public website. The USPTO would also establish a dictionary hierarchy for each technology center (if applicable), updating/revision controls, dictionary time stamping, and means for archiving such dictionaries in case they go out of print. In turn, applicants would have the option, at the time of filing, of identifying in their applications one or more USPTO designated dictionaries believed to be most relevant to their inventions. Alternatively, applicants may identify any publicly available non-USPTO technical dictionary so long as they provide the USPTO with access. In either case, the selected dictionary or dictionaries would become part of the file history, thereby providing the public with knowledge. Examiners would be able to use such dictionaries to establish the routine meaning of any claim term not expressly defined in the written specification. Regardless of whether applicants select a dictionary, they always have the option of assigning a specific or unconventional meaning to any claim term by clearly defining it in the specification. If applicants fail to select a technical dictionary and leave a claim term undefined in the specification, examiners would rely on the technical dictionary or dictionaries assigned to their particular technology center, at the time of filing, to determine the meaning of the claim term. Such dictionary would be identified in the file history.

If our proposal is adopted, applicants, examiners, the public (and preferably the courts as well) would all rely on the same technical dictionaries, in addition to definitions included in specifications, according to the same logical hierarchy. This would provide one consistent, predictable meaning for claims as of the filing date of the application. We argue this would significantly enhance the clarity and

predictability of claim language without changing the law and without changing applicants' right to be their own lexicographers. We believe use of controlling dictionaries will make it easier for courts, patentees, and the public to evaluate the scope of patent protection. We have attached an article on this topic that Intellectual Asset Management magazine recently published in its December 2009 edition.

Transparency and the Availability of Patent Office Data

The optimal mechanism for assessing patent quality should be objective and reproducible by the public. Only where metrics and measurement techniques can be observed and evaluated by all will the patent community have confidence in reliability and accuracy. Public access also allows collaborative development of quality metrics, reflecting the views and potentially the consensus of the patent community, including applicants, patent owners, licensees, and examiners.

Objective measurement of patent quality would be significantly facilitated by enhancing public access to Office data, including both scope of data available and ease of access. We recognize that the Office makes prosecution history and application information available through PAIR, including for published applications. However, the ability to evaluate and use this data effectively is very difficult, if not impossible, unless it is collected and distributed in a form that is subject to review and analysis. We also recognize and thank the office for providing certain statistical data, such as that relating to numbers and distribution of issued patents by assignee per year, information on reversal or affirmance on appeal, and information on reexaminations.

However, we believe that much more useful information could be collected by the Office that would be of value to the public. For example, statistics showing the percentage of office actions with different types of rejections (i.e. 101, 102, 103, 112), and their ultimate outcomes (amendment or cancellation of claims, abandonment, RCE filing, etc.), overall and by Technology Center would be very useful. Such information would enable tracking of the impact of major changes in the law such as *KSR* and *Bilski*.

This information, as well as the information and statistics outlined further below, would be highly relevant for determining the effectiveness and efficiency of prosecution, including existing and proposed efforts by the Office and applicants to improve patent quality. IBM suggests the Office make available as much of this information as is practicable on an ongoing and annual basis, for the Office overall as well as by Technology Center, type of invention (chemical, mechanical, electrical), type of applicant (small or large entity, individual inventor), and any other categorization that might help evaluate the effectiveness of current or future practices by applicants and the Office.

The following is an exemplary, not exclusive, list of categories of data that we would like the Office to collect and make available to the public:

- Data regarding the application as filed, including number of dependent and independent claims, whether an IDS was initially filed, and how many references were cited therein broken down by type (US patents, non-US patents, non-patent prior art);
- Inventor/applicant/assignee information, including size (small/large entity, independent inventor, university, etc.), number of inventors, joint owners/assignees;
- Number and proportion of applications published;
- Counterpart and continuation application information, including priority and family members identified as continuations, divisionals, continuations-in-part, RCEs, provisionals, PCTs and national applications, and information on any patents issuing thereon;
- Number of office actions per application, number of rejections therein broken down by basis (obviousness, written description, etc.) and correlated to outcome (amendment/cancellation of claims, abandonment, continuation, etc.);
- Number of applicant responses, including number of claim amendments and type (canceling, amending, or adding claims);
- Correlation of key claim terms to definition or description in the specification; for applications as filed, issued patents, and terms added by claim amendment;
- Data on appellate practice, such as pre-appeal conference statistics regarding allowance, reopening prosecution, etc.;
- Basis for decisions on appeal (obviousness, written description, etc.);
- Duration of prosecution, measured from time of filing and/or first office action to issuance, with pendency broken down for original and any continuing applications, RCEs, appeals, interferences, etc.;
- Combinations of the above, for example (i) those that measure effect on pendency or issuance of number or type of substantive actions by the applicant (amendments) or Office (rejections); (ii) those that measure characteristics of applications as a function of type of filer (large entity, individual inventor) or type of invention (chemical, mechanical, electrical).

While data on an individual application-by-application basis would be ideal, availability of statistics on a larger scale, such as by Technology Center or type of applicant/assignee, would also be very useful.

IBM suggests that such data would be helpful to both the Office and applicants in crafting improvements to the patent process and making strategic decisions regarding patent procurement, respectively. A specific example is identification of applications assigned to small entities or sole inventors. Pilot programs such as *Backlog Reduction for Small Entity Inventors* are targeted to Technology Centers that experience a large proportion or absolute number of small entity filings. Other programs such as the *First Action Interview Pilot* (discussed further

below in response to Category 4) are available only to applications having no more than three independent and twenty total claims, and therefore primarily impact Technology Centers having a higher proportion of applications with such claim limitations. Similarly, applicants would benefit from detailed information regarding the type of prior art (for example non-patent prior art, or patents from other art areas) examiners rely on in a particular art unit for office action rejections, to help direct the applicant's search and analysis.

With respect to the issue of access, the current inability to search more than a single PAIR record at a time is a significant problem hampering public access to useful data regarding applications' prosecution history. IBM recommends the Office lift this restriction as it interferes with the public's ability to search and work with this valuable source of information.

Category 4 - Pilot Programs:

IBM commends the Office for its use of pilot programs to test new ideas for improving patent quality. The number and nature of the pilots conducted in the last several years demonstrates receptiveness to different and creative approaches to improving patent quality.

Our comments below include in certain instances requests for data to be collected and made available to the public. We believe the information represented by this data would not only help the Office craft improvements to the patent process, but would help both the Office and the public recognize and monitor the impact of such improvements.

Peer-to-Patent Pilot

The Peer-to-Patent Pilot is a project that IBM has long supported and continues to support with enthusiasm. It represents a much-needed improvement in openness, by recognizing that expertise residing in the general public can be put to effective use in helping to find relevant prior art, and in transparency, by providing a means for the public to openly collaborate to find and refine helpful information. This shift to a more cooperative approach is welcomed and encouraged.

IBM believes the Peer-to-Patent pilot has demonstrated the powerful potential of open collaboration to put the best prior art before the examiner. In the course of the pilot, participating applications received many times the number of prior art submissions received in traditional third party processes. At the same time, early fears of some that examiners would be deluged with an excess of art did not materialize. Also encouraging is the much higher incidence of non-patent prior art submissions resulting from the pilot; this was a desired outcome since non-patent prior art has traditionally presented a challenge for examiners to find and apply. Importantly, there were many cases in which the examiner relied on the

Peer-to-Patent submissions to reject claims, leading either to abandonment, narrowing of overly broad claims, or clarification of unclear claims.

We are encouraged by the results so far, but we also think the program needs to be nurtured and further developed to maximize its effectiveness. In moving forward, IBM would like to see the Office take a stronger leadership role in transitioning the program to the next logical stage. Some particular suggestions for actions the Office might consider taking to signal the seriousness of its interest in pursuing collaborative solutions to the problem of finding prior art include:

- Re-opening the pilot and expanding its scope in terms of eligible technologies and increased sample size.
- Taking a more active role in building awareness and encouraging participation by both applicants and potential reviewers.
- Taking a more active role in managing the underlying IT infrastructure. This would put the Office in a better position to evaluate long-term needs and costs of managing a permanent program of this kind.
- Working more closely with examiners to understand how the program might be improved to enhance the usefulness of its input to them. For instance, in cases where Peer-to-Patent prior art submissions were not relied upon, a clear understanding of the examiner's rationale for relying on other art (for example: Specificity of disclosure? Provability of reference's effective date? Apparent applicability?) could lead to website or other improvements in the overall process.

Open Source As Prior Art (OSAPA)

Open source software has existed for over two decades and covers many different technology areas. Given its inherent public availability, open source software could be a good source of prior art to be used during the prosecution of many software patent applications. Since 2006, the OSAPA project has been working to create a search tool that enables the identification of open source software that may be valuable as prior art against software patent applications. The OSAPA team includes representatives from IBM, the Office, and the open source community. Currently, the OSAPA team is working with developers to create a search tool that can take advantage of publicly available search engines to identify open source software. This tool would enable examiners to review the information provided in particular open source software to determine whether it could be used as prior art against a specific patent application.

Pre-Appeal Brief Conference Pilot

This pilot program should have a positive effect on patent quality, as well as examination quality. IBM is grateful for data provided by the Office showing that, as a result of using the pre-appeal brief conference, approximately 60% of applications are appealed, while for 35% the Office reopens prosecution and the

remaining 5% of applications are allowed. This data reveals that 40% of the applications participating in the pilot avoid unnecessary appeals, which should ultimately reduce pendency and the workload of the Board. Over time, use of the pilot should thus reduce applicant expense for applications that would otherwise be subject to the presumably lengthier appeal process. The percentage or number of applications that were reopened or allowed as a result of the pre-appeal brief conference, broken down by Technology Center, reveals that the impact of the program depends strongly on this variable. The Office should continue to collect and disseminate this information, since it should help evaluate the success for the program over time, help applicants to best take advantage of the program, and should help the Office tailor the program for maximum effectiveness, including making appropriate adjustments to increase impact in areas where it is currently less effective. We submit herewith two charts showing pre-appeal brief conference data referenced herein, the first shows outcomes following pre-appeal brief conferences on an annual basis for 2005 through 2009, the second shows outcomes by Technology Center for the time period 2006-2007.

Evaluation of pendency, regardless of the outcome of the pre-appeal conference, would also help determine the pilot's efficacy. For example, on the one hand, many direct appeals are resolved relatively quickly through withdrawal of the final rejection at the appeal conference stage, while on the other hand, applications that initially used the pre-appeal pilot may nevertheless experience protracted prosecution including an eventual appeal. Therefore, another useful metric to verify whether the pilot is effective would be to compare average pendency (in terms of time and/or number of actions per disposal) for applications that used the pre-appeal brief conference pilot and those that proceeded to appeal without using the pilot.

Further metrics that would be useful in tracking the program's overall impact would include the number of pilot-eligible applicants that took advantage of the pilot and whether usage trended up or down during the life of the pilot. Also, the metric representing the total number of pre-appeal conference requests, minus the number of new non-final office actions and allowances immediately following the request, could be used to determine the overall effect on patent quality.

Going forward, we suggest the Office also evaluate those cases that do not go on to appeal after use of the pilot, to determine whether improvements in examination might enable applicants and the Office reach closure without need for the appeals process in the first instance.

First Action Interview Pilot

This pilot program should have a direct positive impact on both patent quality and examination quality because it provides an opportunity for the applicant to interact directly with the examiner early in the examination process, before the

examiner has reached any erroneous conclusions based on a misunderstanding of the applicant's disclosure. Thus, improper rejections and misdirected applicant arguments can be averted. The applicant and the examiner can engage in an interactive discussion, which is effectively impossible or prohibitive in written office actions and responses. The openness of dialogue may result in a faster disposal of the application and more appropriate claim scope since clarifying amendments can be discussed and agreed upon, avoiding the addition of unnecessary claim limitations that do not address the examiner's rejection. Therefore, the number of actions per disposal in applications that utilize the first action interview pilot should be compared to the number of actions per disposal in applications examined in the normal course of prosecution to measure the pilot's efficacy and impact on pendency.

We also recommend expanding the program to include more complex applications involving more than the 20 claim minimum, as these should benefit at least as much as the less complex applications from use of the pilot.

In general, for applicant/examiner interviews to have a positive impact on patent quality and examination quality, it is important for the examiner to be willing to participate in the interview process and be prepared to discuss any proposed amendment in light of the art of record. Often a proposed amendment is introduced and the examiner merely states that the amendment would require further search and/or consideration without comment regarding the merits of the amendment with respect to art already of record and additional art of which he is already aware.

Applicants' representatives should also be prepared for the interview and be prepared to propose amendments where appropriate. If, during the course of the interview, the examiner brings prior art to the attention of applicant's representative that teaches the proposed amendment, then applicant's representative should be sufficiently familiar with the invention (as set forth in the specification) to offer alternative claim language, at least where the art is straightforward. Since the examiner interview summary record should indicate if agreement was reached, the percentage of applications with dispositive interviews could be used as a metric to determine their success. Further, the number of actions per disposal after an interview could be compared to a (non-interview) control group to determine the efficacy of the interview process.

For telephonic interviews, the amount of time between the interview and the time the interview summary record is generated and mailed to the applicant could be measured to encourage minimization of such delay and ensure accuracy, since information relating to the interview might be forgotten over time.

Continuing Education for Practitioners (CEP) Pilot

CEP was originally conceived as a tool for educating patent practitioners. IBM believes the content can be utilized more broadly, to ensure that patent

practitioners are kept informed of new, as well as existing, Office examination policies and procedures. We believe it would be especially useful if the modules were available for practitioners to review at their convenience – in a format that would allow practitioners to print out all or portions of the module for future reference.

Ombudsman Pilot Program

The Ombudsman pilot program can improve examination by ensuring that applications proceed through prosecution in accordance with established Office procedures. To enhance efficacy, the public should be made aware of the issues the Ombudsman has authority to address and those issues which will be referred to others for resolution. Also, the Office should provide an avenue for further pursuing an issue if an applicant is not satisfied with the Ombudsman's proposed resolution or the resolution proposed by other entities within the Office to whom the issue was referred.

To promote transparency, the Office should establish a database for tracking issues handled through the Ombudsman Program and it should be open to the public. Useful metrics to evaluate the program would include: the number of requests received; the types of requests received (to determine if the system is being used correctly); the time elapsed until applicants' issues are resolved (to determine if the program is becoming more or less efficient in resolving process related issues – evaluated perhaps through a customer survey), and over the longer term, whether there is any incremental reduction in application processing time. These metrics should also be broken down by Technology Center so that the Office can identify areas that have higher problem rates.

The Office should consider what adjustments would be needed if there is a flood of requests relating to issues not appropriate for the Program, or if there simply are more requests than can be resolved in the committed time periods due to lack of resources.

Category 5 - Customer Surveys Regarding Quality

Past surveys by the Office have broadly targeted top filers submitting six or more patent applications within a given year. IBM suggests that a better approach would be surveys directly tied to examiner prosecution activities for specific applications, as well as to specific Office processes, programs and applicant populations. The detailed information obtained from the survey results could be used to focus examiner training on particular problem areas or to determine the effectiveness of a particular Office practice or procedure.

Past surveys have inquired whether an examiner is citing prior art appropriately, whether all claims were addressed in a rejection, and whether a rejection was

consistent with the requirements of the statutory section cited, i.e. 35 USC Sections 101, 102, 103 or 112. IBM recommends further inquiry regarding the quality of Office Actions, such as whether the applicant believed the examiner demonstrated familiarity with the applicant's specification and sufficient understanding of the claimed invention, whether the rejection was clearly and concisely written, and whether the examiner identified where the specific claim elements were cited in a prior art reference.

Surveys should include questions regarding administrative processes such as Interview Practice, Restriction Practice and RCE practice. In some instances, actions agreed upon during interviews are not subsequently followed by examiners. Improper restrictions increase pendency and are costly to the applicant. In order to determine if examiners are improperly using RCE practice, applicants should be asked about issues such as how often they have to request reconsideration of a premature final rejection, or how often they feel that they have to file an RCE in order to have a clarifying amendment entered.

Questions should also be directed to specific user communities such as applicants who have prosecuted before the Board of Patent Appeals and Interferences, and/or tailored to the effectiveness of programs such as Pre-Appeal Conferences.

Further, since enhancing the quality of patent examination and issued patents is a shared responsibility, patent examiners should be able to similarly evaluate the performance of patent professionals.

Lastly, Customer Panel Quality Survey results should be made publicly available, without identifying the respondents, and should be conducted by organizations or persons clearly affiliated with the Office. Public availability will promote transparency and allow the public to assess quality issues and trends, and anonymity will promote candid responses and protect respondents' interests. Verification of Office authorization of those performing surveys has not been consistently provided in the past, and is important to ensure full and frank participation. The Office could publicize the surveys more fully and provide information to help respondents identify authorized representatives.

Category 6 - Tools for Achieving Objectives

IBM's Strategic Information Mining Platform for Licensing and Execution (SIMPLE) tool could be made available to the Office to enhance the quality of the Office's processes. SIMPLE is a holistic information mining software tool that can analyze a large corpus of patents and scientific literature for insights. SIMPLE provides integrated end-to-end IP analytics that enable search and retrieval, using analytics algorithms and visualization techniques accessible through a web interface. It also provides web services for ease of integration

with other applications. SIMPLE implements (i) management of patent and scientific literature information, (ii) search and retrieval of patents from free form text inputs as well as chemical structures (iii) evaluation of the originality of patent claims based on analysis of text over time, and (iv) transformation of such information into a human interactive interface and other consumable forms, such as reports and visualizations. Specifically, SIMPLE enables searching without knowledge of the technology or search databases, and is capable of categorizing results for better visualization. Thus, SIMPLE could be used to perform searches shortly after an application is filed as an initial filter before examination begins. In general, SIMPLE's information mining tools can enhance the Office's and other users' prior art searching at any time during the application's lifetime, including before filing, during prosecution, and after issuance. We submit herewith a brochure for SIMPLE which describes the tool in more detail and provides contact information.

Conclusion

IBM thanks the Office for including the patent community in its efforts to evaluate the quality of the examination process. We reiterate our steadfast commitment to work with the Office in developing new approaches and solutions to the important goal of improving the patent procurement process, and thus patent quality.

Respectfully submitted,

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A case for adopting controlling dictionaries in the USPTO

Ambiguous language in patent applications can cause significant problems with examination and later with patent enforcement. The solution is to introduce easily accessible controlling dictionaries that will leave no one in any doubt as to what words mean

By **Diana Roberts, Manny W Schecter** and **Alison Mortinger**

The phrase "May I have the definition, please?" is familiar to anyone who has ever watched a spelling bee. When a spelling bee contestant is presented with an unknown or difficult word to spell, she may ask the judge for the word's definition. A definition allows the speller to be certain she is thinking of the correct word, and perhaps discern the origin of the root of the word (eg, Greek or Latin). With this information, she is better equipped to determine the correct order of the word's letters and advance to the next round.

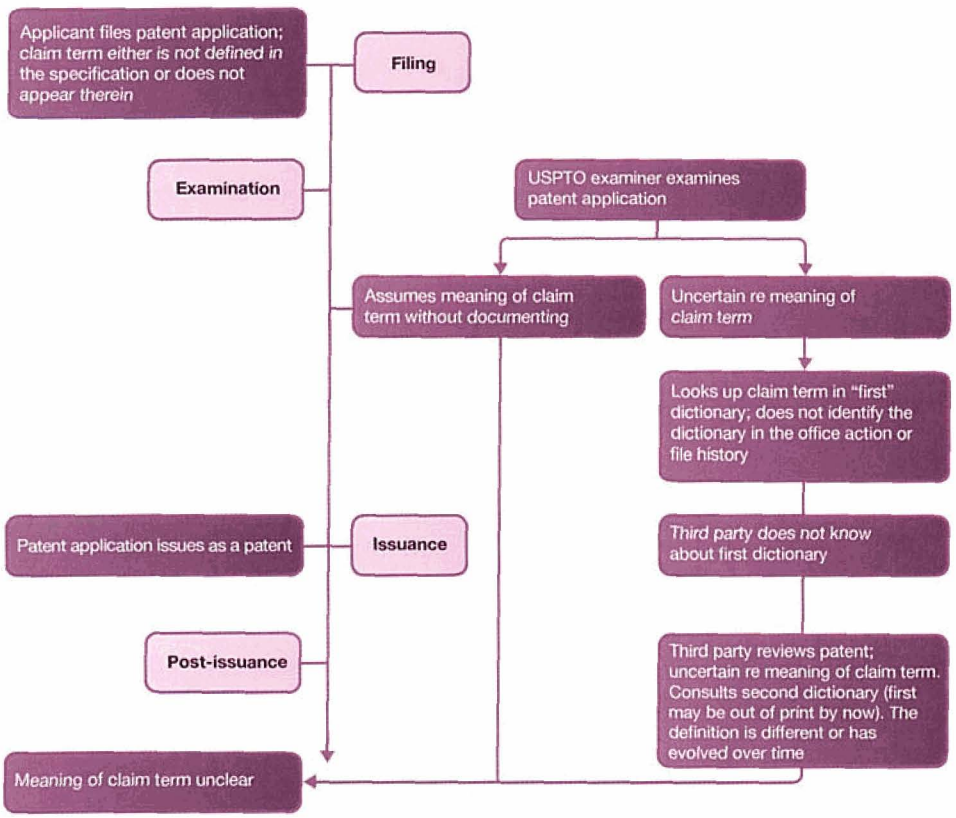
Similar to the spelling bee contestant, a patent examiner in the US Patent and Trademark Office (USPTO) often has to determine the meaning of words – namely, those used in patent applications. A patent application includes a written description, or specification, that is intended to describe precisely the invention, and concludes with one or more claims that define the metes and bounds of the invention. Should a patent application become a patent, it is the patent's claims that must place the public on notice as to what the patentee owns, and thus what the patentee may exclude others from using, making or selling. Therefore, it is vital that the meaning of the claims be unmistakably clear and supported by the specification, as the claims are read in view of the specification.

But first, a patent application must be rigorously examined by a patent examiner before it can be issued as a patent. Referring to Figure 1, which provides a high-level overview of the current examination process, the patent examiner will search patent and scientific databases for relevant prior art, meaning information related to the claimed invention that was published before a given date. The examiner will compare the prior art to the claims to determine whether they meet patentability requirements, such as novelty and non-obviousness. When making this determination, the claims will be given their "broadest reasonable construction" (see *In re Am Acad Of Sci Tech Ctr*, 367 F3d 1359, 1364 (Fed Cir 2004)). And if the examiner is uncertain or in doubt about the meaning of particular terms in the claims, the examiner will initially refer to the claims themselves to provide guidance as to their meaning. If this proves to be unhelpful, the examiner will next refer to the applicant's specification to help determine the meaning of the claim terms. Nevertheless, if the examiner still remains uncertain about a claim term, he or she may refer to one or more technical dictionaries, treatises or other literature for assistance.

Potential for problems

And herein lies the problem. One dictionary or treatise may contain definitions that are inconsistent with others. The examiner may consult a particular resource for a particular claim term to reach a determination of patentability, but if that resource remains unidentified in the public record, then the public will not know what meaning the examiner relied upon to evaluate the patent application. After the patent issues, the public (and the courts as well) may consult different resources from those used by the

Figure 1. **Current process: problem of unclear claims**



examiner in order to assess the scope of the claims and end up with a different definition. This directly leads to an inconsistent and unpredictable meaning for claims, especially because the meaning of words often evolves in leading-edge technologies. Even if an undefined claim term, meaning a term that has not been defined in the specification, has a discernable ordinary and routine meaning at filing, it is likely to acquire a different, perhaps broader meaning during the life of the patent. As time passes, it will become more difficult to determine the meaning of the claim term at the time the patent application was filed.

Given the above challenges, establishing and maintaining a clear meaning for claims linked to a single point in time is essential to improving patent clarity and thus patent quality. A clear meaning also enables others to avoid infringement by implementing appropriate design-arounds. On the other hand, when a patent has ambiguous claims, an industry participant may choose an unnecessarily costly design-around rather than risk treading on all possible interpretations of an ambiguous claim. In this inefficient scenario, the new design may be abandoned as too costly or impractical. Protracted disputes between patentees and alleged infringers are also likely: parties may argue over the scope of ambiguous claims, litigation may be necessary to resolve disputes that could have otherwise been settled, and resources that could have been used for research and development may be diverted to legal fees.

To avoid claim ambiguity and its negative consequences, we propose that patent applicants and USPTO examiners (and preferably the courts as well) use the same technical dictionaries to provide one consistent, predictable meaning for claims as of the effective filing date of the application. We are proposing this date as the single point in time for determining the meaning of claims over the invention date for several reasons:

- First, it is obviously easier to determine the filing date than the invention date, as the latter may be based on information only in the possession of the inventor and subject to corroboration.
- Second, if the United States patent system moves to a first-to-file system, it is expected that the invention date will no

longer be legally relevant for purposes of claim construction, and thus our proposal would adapt easily into the new system.
- Finally, in *Phillips v AWH Corp*, No 03-1269 (Fed Cir 2005) (*en banc*), the Federal Circuit indicated that the ordinary and customary meaning of a claim term is the meaning at the time of invention: that is, as of the effective filing date of the patent application.

For those reasons, we believe the effective filing date is the most appropriate point in time for determining the literal meaning of the claims.

Our proposal is not intended to have any effect, one way or the other, on the patentee's ability to cover later technologies through the use of the doctrine of equivalents. That doctrine is designed to ensure that an infringer is held liable for insignificant alterations from the precise literal coverage of a patent claim. Rather, our proposal offers a means of establishing a consistent and reliable literal meaning for claims that could be relied upon for the life of the patent. Specifically, we propose a framework for the use of publicly available technical dictionaries whereby the USPTO would officially adopt one or more controlling technical dictionaries for patent applications in each technology centre (TC); and establish a process for defining an order of precedence for the use of such dictionaries, while at the same time allowing applicants to be their own lexicographers.

Applicants may be their own lexicographers

Under US law, patent applicants have the option to be their own lexicographers when drafting their applications. Applicants may use any term and even create their own claim terms, so long as "any special meaning assigned to a term is clearly set forth in the specification" (see *Memorandum to Technology Center Directors and Patent Examining Corps* from John Love, Deputy Commissioner for Patent Examination Policy, titled "Indefiniteness rejections under 35 US C. 112, second paragraph"). This practice would continue under our proposal. If an applicant chose to assign a specific and/or unconventional meaning to a claim term, the applicant would have to clearly define the term in the specification. A glossary or short dictionary section in the written description could be used when many terms required definition. The use of a glossary would help to make the definitions readily available to examiners and the public.

USPTO controlling dictionaries

The USPTO would establish a process for selecting one or more controlling publicly available technical dictionaries for each TC (or alternatively art unit, class or other desired level of granularity) within the USPTO. The selection process used by the USPTO, as well as the selected dictionaries themselves, would need to be impartial to all applicants in any particular technology area. The USPTO would also need to establish strong revision controls for maintaining and updating such technical dictionaries, including time-stamping all revisions. It would be advantageous for the selected technical dictionary publishers to maintain and update their technical dictionaries according to the USPTO revision controls in order to maintain their status as a preferred source of the USPTO.

More than one technical dictionary could be needed for a particular TC if, for example, one technical dictionary did not fully cover a particular technology. If a TC selected more than one technical dictionary, that TC would designate a ranking, or hierarchy, to resolve any conflicting definitions.

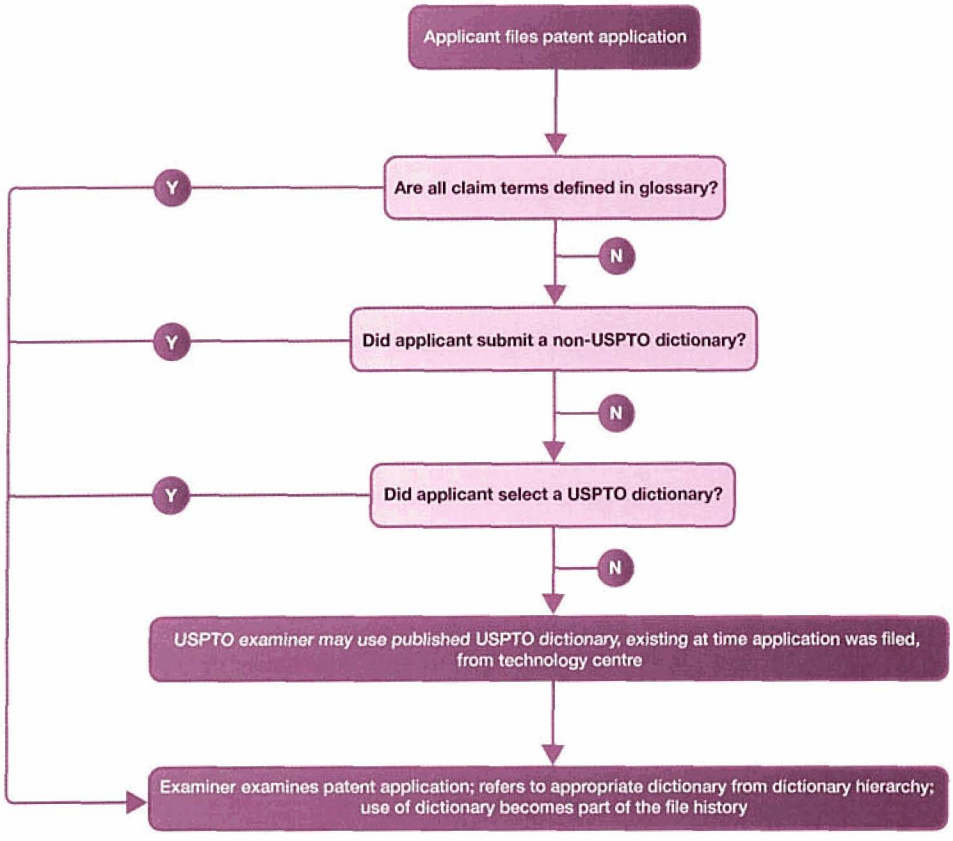
For each TC, the USPTO then would make publicly available all technical dictionary certifications, updates thereto, and their associated hierarchies. This could be done by posting them to the USPTO website. Copies of the dictionaries would be archived at the USPTO so that if the original publisher no longer made them available (eg, they went out of print), the public would be able to access all USPTO certified dictionaries at any time.

Patent application process incorporating a hierarchy of technical dictionaries

Referring to Figure 2, which provides a high-level overview of our proposal, a patent applicant may provide a glossary of claim terms in the written description at the time of filing. This glossary would be the first dictionary in the dictionary hierarchy (described in more detail below). The examiner would use the glossary during the examination process to determine the meaning of any claim terms described in the glossary.

In addition to (or alternatively instead of) supplying a glossary, the applicant would have the option, at the time of filing, of selecting a USPTO certified technical dictionary(ies) from a particular TC that the applicant believed to be most relevant to its invention. If multiple dictionaries were selected, the applicant would have to establish a hierarchy among them. If the

Figure 2. **Proposal: technical dictionary hierarchy**



USPTO assigned the application to a different TC, the applicant's selected USPTO certified technical dictionary(ies), if any, would be regarded as dispositive.

Alternatively, in *lieu* of a USPTO technical dictionary, the applicant would have the option of designating any publicly available, non-USPTO technical dictionary, so long as the applicant provided the USPTO with access to it. The applicant could accomplish this by supplying a copy of the technical dictionary to the USPTO, or alternatively providing a link to it (although online dictionaries would present an additional issue of change control). In either case, the selected technical dictionary(ies) would become part of the file history to help define the claims terms by informing the public which dictionaries were used during examination. These dictionaries would be used primarily to establish the routine meaning of any claim term not expressly defined in the written description.

Finally, in the event that the applicant failed to select or provide a technical dictionary or adequate glossary (or if a claim term were not found within one of these resources), the following process would occur:

- First, the examiner would use by default the certified USPTO technical dictionary(ies) designated for his corresponding TC that existed on the effective filing date of the application. Such dictionary(ies) would be used to determine the meaning of any claim term not expressly defined either in the specification or in one of the dictionaries selected by the applicant.
- Second, the examiner would notify the applicant of its use of such USPTO dictionary in the first office action.
- Finally, if a claim term still remained undefined, the examiner would give the undefined claim term the narrowest possible meaning, or if that were simply impossible, hold the claim(s) unpatentable. If the former, the examiner would record such meaning in the first office action.

Advantages

Use of controlling technical dictionaries and glossaries by patent applicants and

examiners would significantly enhance the clarity and predictability of claim meaning and reduce protracted disputes stemming from ambiguous claims. Under the current proposal, the patent applicant retains freedom to be its own lexicographer in two ways. First, the applicant may select or provide a USPTO or publicly available non-USPTO technical dictionary of its own choice at the time of filing. Second, the applicant may include a definition directly in the written description via a technical glossary section.

If the applicant fails to select or provide a technical dictionary or glossary or otherwise leaves a claim term undefined, the examiner uses one or more technical dictionaries assigned to his technology centre, at the time of filing, to determine the meaning of a claim term. Because the use of such dictionary(ies) is part of the prosecution history, the public can readily determine the true meaning of the claims.

If, after all the above resources are exhausted, a claim still has an unclear and undefined term, such term will be construed against the applicant by being given the narrowest possible meaning by the examiner if possible, or if not possible, held as indefinite.

Because this proposal creates intrinsic evidence in the prosecution history, courts should rely on those same dictionaries for claim construction, thereby enhancing predictability within the entire patent system (see *Phillips v AWH Corp*, No 03-1269 (Fed Cir 2005) (*en banc*)). Implementation of this process would promote certainty and predictability concerning the meaning of claims, and thus provide public notice of the patentee's rights.

Increased claim certainty through the use of glossaries and technical dictionaries will help the public to determine the true meaning of claims and avoid the undesirable effects of ambiguity, including wasting technical and financial resources. By posing the question "may I have the definition, please?" examiners and the public can advance to the next round of improved patent quality. **IAM**

Diana Roberts and **Alison Mortinger** are both IP Law Counsel with IBM Corporation

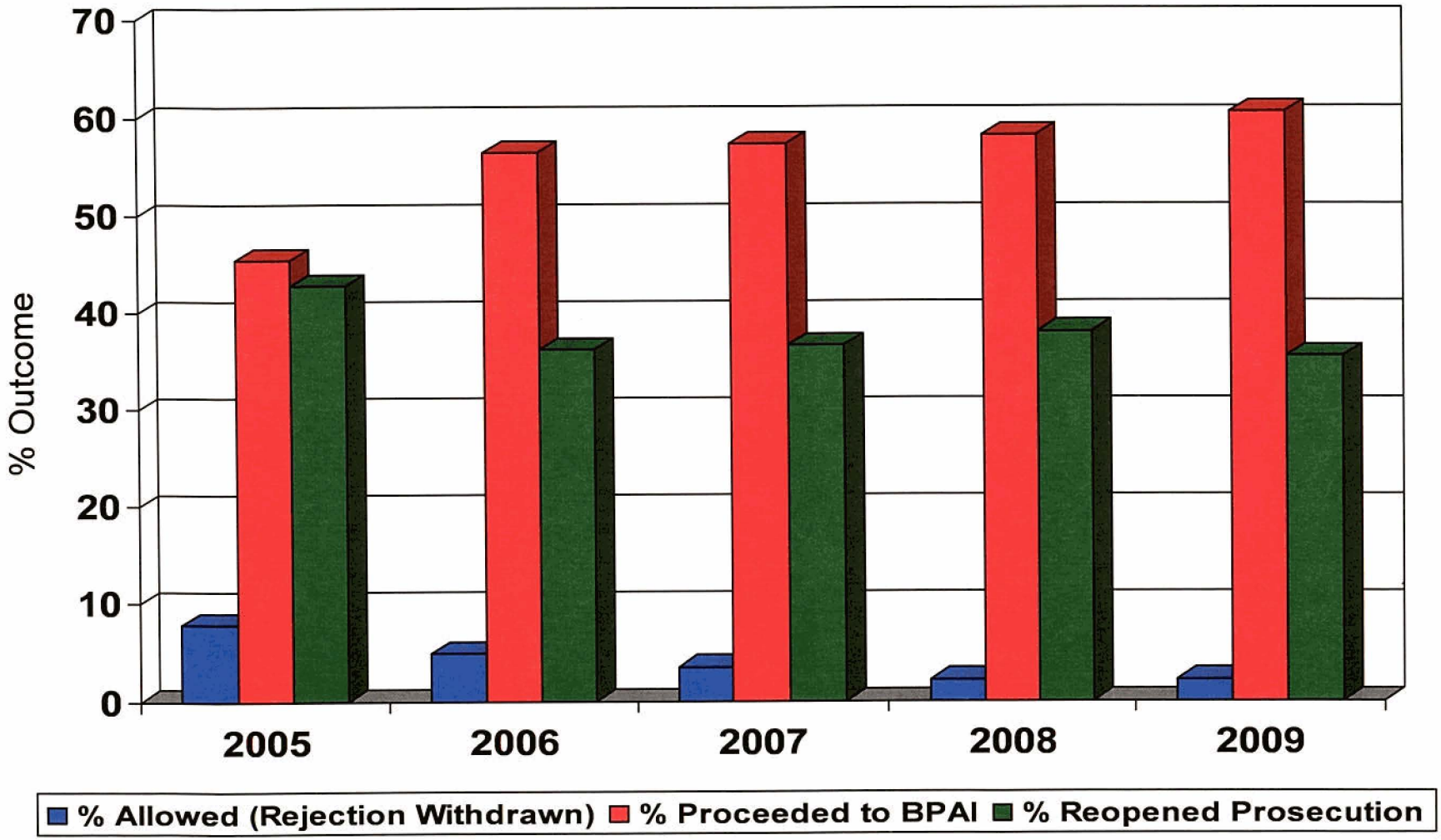
Manny W Schecter is Associate General Counsel, IP Law, and Chief Patent Counsel with IBM Corporation

The opinions expressed in this article are those of the authors, and not necessarily those of the IBM Corporation.

This article is dedicated to Herman Rodriguez, whose devotion and contribution to patent excellence inspired its contents

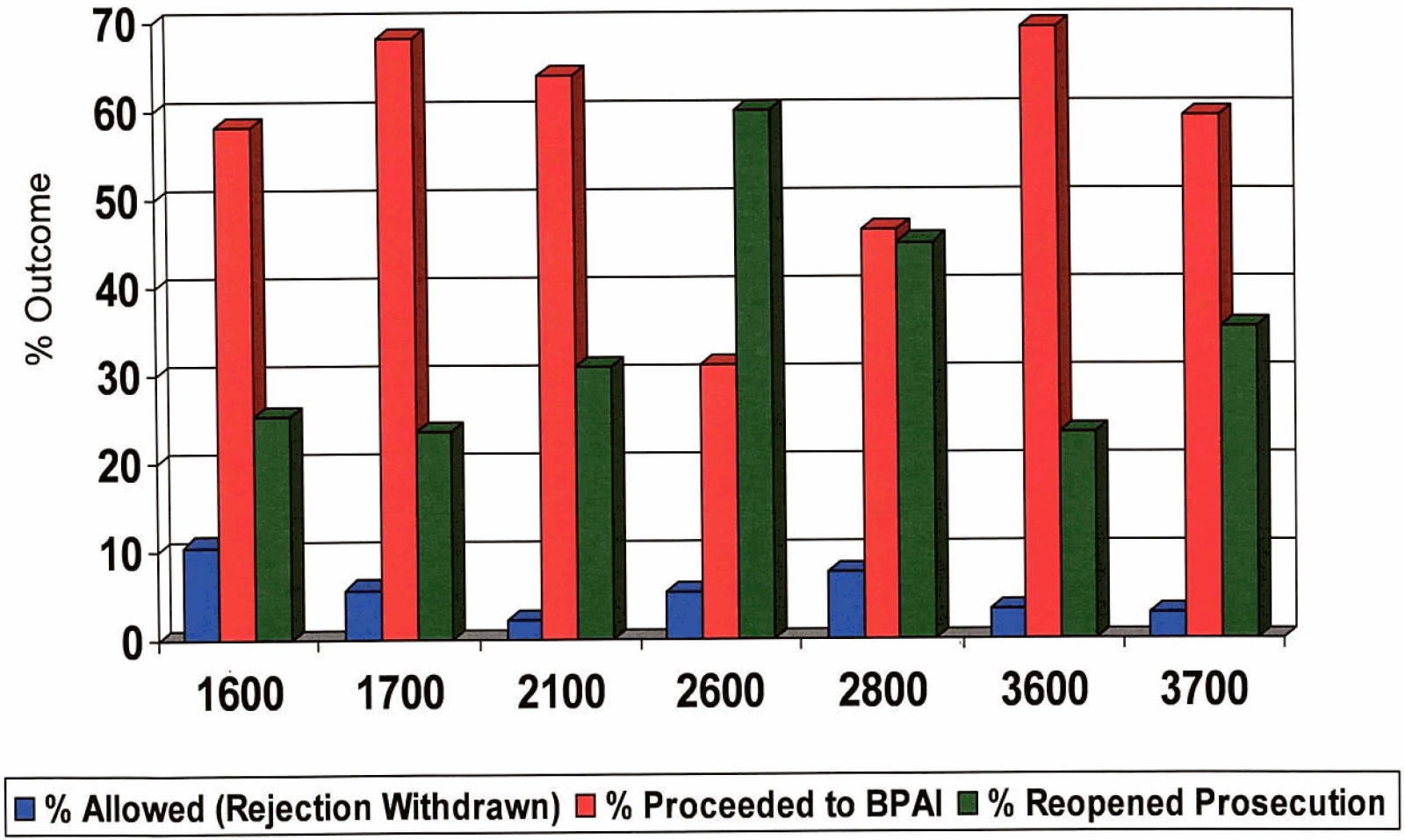
Pre-Appeal Conference

By Outcome



2006-2007 Pre-Appeal Conference Snapshot

Outcome by Tech Center



Strategic Information Mining for Licensing and Execution (SIMPLE)

Executive Summary -- Mining intellectual properties (IP) to improve innovation dynamics, enhance research and development, and speed up IP operations.

Problem

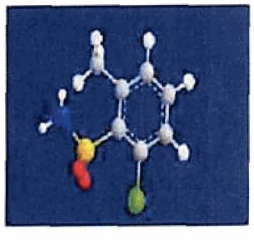
Intellectual Properties are the critical assets to corporations. Many industries rely on appropriate IP management and execution, for example, pharmaceutical and healthcare lifesciences. There is a large variation in the quantity, quality and format of the IP information. It is as diverse as raw data produced by high throughput screening, technical and professional literature, and patents. With the growth of information and the speed of innovation occurring in these industries, techniques for automatic processing become increasingly essential. The need for more and better methods to enable the automatic identification of important information and linkages and relationships has never been more critical. We believe it is easy to assert that those who leverage these information processing capabilities best will have a significant competitive advantage.

Solution

IBM research has developed an Intellectual Property analytical platform, SIMPLE, that can mine by high value curated content in the technical and professional literature represented by collections such as PubMed and patents to support IP operations and research and development. In particular, SIMPLE embeds the follow key patent analytics capabilities.

- *Patent search and prior art search*
- *Proximal search*
- *Landscape analysis*
- *Dictionary analysis*
- *Nearest Neighbor search*
- *Patent originality identification*
- *Divestiture impact analysis*
- *Patent cluster generation and summarization*

Applying analytical solutions for IP and healthcare and life sciences requires addressing three major technical challenges. First, a solution requires management of the information itself. Processing, cleansing, normalizing, validating and storing the information in a manner that it is ready and accessible for downstream analysis is a critical enabling step. Second, applying interactive and batch analytical techniques to the structured and unstructured information to derive additional value added attributes, values and relationships. These techniques consist of technologies such as unsupervised learning or clustering algorithms, classification, entity extraction or annotation algorithms. Third, it requires transformation of the information into a human interactive and consumable form. This generally consists of creating various indices that allow quick searching, summarization, aggregation, correlation, analysis and visualization. We have created such capabilities in SIMPLE as well. The key technologies are listed below:



- ✓ Chemical and biological entity extraction
- ✓ Chemical similarity search and indexing
- ✓ Fulltext search and indexing
- ✓ Chemical and biological entity relationship analysis
- ✓ Novel claimed chemicals report
- ✓ Network analysis and visualization

Market Characteristics

- ***Utilizing structured and unstructured data content for research and development in Healthcare and life-sciences has become increasingly popular***
  - The markets are very fragmented, but significant
    - Text mining platforms: Autonomy, Clearforest/Reuters, FAST, Endeca, ...
    - Solutions: BuzzMetrics/AC Nielsen, Cymphony, Attensity, ...
  - Service models are diverse
    - Asset Licensing + service
    - SaaS, hosted

Delivery and Support

SIMPLE today can be delivered via a Services + SaaS model.

Development

SIMPLE is a Java and Web based application. As is, it can be used in licensed or service model mode.

Management

SIMPLE is managed by IBM Research.

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