Proposed Quality Metrics for Roundtable Discussions

The U.S. Patent and Trademark Office (USPTO), in conjunction with the Patent Public Advisory Committee (PPAC), has undertaken a project related to overall patent quality. As part of this initiative, the USPTO is conducting two roundtable meetings to obtain public input from organizations and individuals on proposed USPTO quality metrics. In order to focus the discussion and enhance the efficiency of the meetings, the USPTO is providing proposed quality metrics as detailed below.

1. Sources of the Metrics
The USPTO has consulted a wide variety of sources to identify valuable indicia of patent examination quality. Such sources include current practices, key USPTO statistics, blogs, PPAC outreach projects, customer surveys, practices of foreign patent offices, past USPTO studies, non-USPTO studies, and public comments. In particular, the USPTO recently published a notice soliciting comments from the public on enhancing the quality of patent examination. *See Request for Comments on Enhancement in the Quality of Patents*, 74 *Fed. Reg*. 65093 (Dec. 9, 2009). In this notice, the USPTO described its current techniques for measuring patent examination quality, and requested public input on metrics for measuring indicia of quality in patent examination. The USPTO has reviewed the many insightful comments provided by the public, and in view of their suggestions, has developed a proposed quality metric for discussion at the upcoming roundtable discussions. Incorporating suggestions from the public comments relating to quality metrics, the proposed metric would combine data currently taken and used by the USPTO, data currently available but not applied by the USPTO for quality purposes, and new sources of data not previously monitored by the USPTO.

In the past, the USPTO has used two metrics, an allowance compliance rate and an in-process compliance rate, as the official metrics of examination quality. Both of these were standalone measurements of quality of actions taken by an examiner in an individual application. Additionally, the USPTO has gathered data on the types of actions taken, including those that may be indicative of the quality of the examination such as those reopening prosecution after final rejection, but does not use such data as a metric of examination quality. The USPTO also has gathered data through the Customer Panel Quality Survey, which has administered regular surveys that the USPTO analyzes on a quarterly basis.

In view of the feedback received from the public, the USPTO has targeted certain areas as potential metrics for patent examination quality. For instance, the public comments suggested the following: measurement of quality throughout prosecution; benchmarking against the operations of the European Patent Office (EPO); augmenting the allowance measurement measures with final rejection error measures; monitoring supervisor performance; asking attorneys for feedback relating to prosecution; internal review of USPTO actions for clarity and completeness; analysis of search quality; and monitoring the number of requests for continued examination (RCEs) filed in applications. The

metrics proposed below incorporate, to various degrees, these and other suggestions provided by the public.

2. Proposed Metrics

The USPTO proposes for discussion a composite quality metric composed of six individual metrics: final disposition error rate, in process review error rate, complete application process review scoring, quality index review scoring, customer survey data, and examiner survey data. These have been selected as providing quantitative data reflecting numerous facets of the quality of patent examination by the USPTO. The use of data of different types and from different sources is proposed so as to create a comprehensive view of overall patent quality. The use of multiple metrics that view the complete picture of examination from different perspectives will help avoid the situation in which an inordinate focus is placed on one narrow quality aspect, *e.g.*, whether there is a "clear error" in the allowance of an application, such that poor quality in other aspects, *e.g.*, improper rejections to avoid improper allowances, is masked and permitted to increase as an unintended consequence of a narrow quality focus. In the multiple metrics presented for discussion purposes, the "quality" being measured by the different metrics is not necessarily the same across metrics. The first two measures of quality (which correspond to the measures the USPTO currently has in place) are the most apparent from a USPTO management perspective: they measure whether the action (allowance or other Office action) taken is an action that a reasonable supervisory patent examiner (SPE), the first line manager, could have permitted. The third and fourth measures of quality address specific features of the prosecution process from different perspectives: the third more intensive review of a random sample of application and the fourth being complete a review of activities in all applications. The third and fourth measures of quality are related but complement the first two measures of quality. The final two measures of quality (surveys) address a different set of quality issues (impressions from applicants and examiners) which may but do not necessarily correlate with other four measures of quality. By selecting varied metrics to provide a comprehensive picture of patent examination quality, it is intended that any issues identified will be met with a comprehensive and balanced action on the part of the USPTO to address these issues.

A.   Final Disposition Error

The first metric, final disposition error rate, is a measure of the degree to which the final disposition of the application; i.e., allowance or final rejection, was properly made. This error rate is currently measured by the USPTO as part of its standard quality procedures. This error rate is performed by random sampling of USPTO actions that allow or finally reject an application. This metric is a new metric for fiscal year 2010. In prior years, the USPTO measured the allowance compliance rate, but did not have an overall final disposition metric that treated errors in final decisions to allow and errors in final decisions to reject an application in common.

The final disposition error rate is the percentage of reviewed applications in which a clear error is found with respect to the examiners' final determination concerning the patentability of the claims. A clear error in the allowance of a claim is the allowance of a claim when a reasonable SPE could not have permitted the allowance. A clear error in

making a rejection, objection, or other requirement in a final rejection is the making of an unreasonable rejection, objection, or other requirement: i.e., a rejection, objection, or other requirement that a reasonable SPE could not have permitted. If the action preferred by the SPE differs from the action taken by the examiner, it is considered a difference of opinion and not a clear error as long as the action taken by the examiner is reasonable.

This error rate has two components: allowance errors and final rejection errors. Allowance compliance is determined by conducting a review on applications after a notice of allowance has been mailed in an application but prior to patent grant. The focus of this review is on the examiner's decision to allow the application. An allowed application is considered to be compliant if none of the allowed claims are found to be clearly unpatentable for any reason provided in the patent laws. Similarly, finally rejected applications are considered to be compliant if they are free of clear errors in any rejection, objection, or other requirement in the final rejection that have a significant adverse impact on the ability of an applicant to advance prosecution on the merits of the application.

This sampling is performed by the USPTO's Office of Patent Quality Assurance (OPQA). Feedback is provided to the examiner on an application-specific basis and through Patent Examining Corps-wide or Technology Center specific training provided on a regular schedule that addresses the most frequently noted deficiencies. The final disposition error rate therefore attempts to measure the quality of the end product of patent examination and address problems on both an individual examiner level basis and on a broader Patent Examining Corps-wide basis.

B.   In Process Review Error
The second metric, in process review error rate, is a measure of the degree to which actions taken during the course of examination have been properly made. This error rate is also currently measured by the USPTO as part of its standard quality procedures. This error rate is performed by random sampling of USPTO actions that are not final actions or allowances. This metric as defined above is also a new metric for fiscal year 2010, but is a modification of the in-process review error rate reported in prior years. The in-process review error rate has been a USPTO quality metric since fiscal year 2005, but the final rejection error rate was included in the in-process review error rate, rather than the final disposition error rate, in fiscal year 2010.

The error rate is the percentage of reviewed applications in which a deficiency is found. Deficiencies are instances of clear error (discussed with respect to final disposition error rate) that have a significant adverse impact on the ability of an applicant to advance the prosecution on the merits of the application. The review focuses on indicators of quality that were determined on the basis of feedback from patent practitioners. These indicators include, but are not limited to: the propriety of the rejections in the Office action; the failure to include rejections where appropriate; the completeness and clarity of the examiner's response to the applicant's previous reply; the propriety of any restriction requirement; the quality of the search; and the propriety of the treatment of formal matters. If there is a action taken on the part of the examiner that contains a clear error

and would result in unnecessary expenditure of resources by either the USPTO or the applicant, the action is considered deficient, and it is counted as an error.

This sampling is also performed by the USPTO's Office of Patent Quality Assurance. Feedback is provided to the examiner on an application-specific basis and through training provided on a regular schedule that addresses the most frequently noted deficiencies.

C.   Complete Application Process Review Scoring

The third metric, complete application process review scoring, is proposed to be a detailed measure of the degree to which the actions taken during the course of examination conform with the best practices of the USPTO. This metric is not currently measured by the USPTO; however, a review of this nature is performed by the European Patent Office (EPO) as part of its standard quality procedures. This review would be performed by random sampling of applications. This metric would provide an in-depth review of the examinations so as to result in a detailed score representing all aspects of the examination process.

The metric is contemplated as the average of the individual scores of the reviewed applications chosen by random sampling. One potential method of sampling would perform reviews on applications currently undergoing examination, providing a similar analysis to the in process review but in much greater detail. This type of sampling would allow for feedback to examiners on an application-specific basis concerning issues not currently measured by the in process or final disposition reviews. Alternately, sampling could be performed on finally disposed applications; i.e., those that have been allowed or abandoned. This second method would permit a detailed forensic study of the causes of delay in the examination process, whether due to Office handling or applicant's actions.

The proposed review would assign a score to individual applications based upon their compliance with best practices at the USPTO. Best practices are currently contemplated to include, but not be limited to, factors such as compliance with statutory requirements, MPEP guidelines, and compact prosecution. Each measured factor would be weighted commensurate with its impact on the examination process. For example, defects in a claim rejection would be weighted much more heavily than defects in addressing an improper form of an abstract.

The USPTO seeks input from the public at the upcoming roundtable discussions as to the nature of the scoring, and also as to the particular measurable indicia which should be chosen as representative of best practices. Customer feedback from these discussions will assist the USPTO in constructing a system of review and scoring that provides quality information that meets the needs of both practitioners and the USPTO.

Furthermore, the scoring provided through this metric would possess similarities to a similar metric currently measured at the EPO. Due to these similarities, use of this metric could assist the USPTO in efforts to cooperate with the EPO on examination quality. The USPTO could advance this metric in furtherance of world quality standards of

examination, which would permit office-by-office comparison of the quality of examination at each Office.

In a similar manner to the currently-used metrics discussed above, sampling could be performed by the USPTO's Office of Patent Quality Assurance, and feedback would be provided to the examiner on an application-specific basis and through training provided on a regular schedule that addresses the most frequently noted deficiencies. Additionally, forensic studies of disposed applications can be used to monitor past examination issues as well as current examination issues, and provide a history of the quality of examination before the Office which may be correlated with internal and external factors.

D.   Quality Index Report

The fourth metric, quality index report (QIR), is proposed as a measure of the degree to which actions in the prosecution of the patent application reveal trends indicative of quality concerns. This index is not currently measured by the USPTO, but would be based on data currently available through the USPTO's Patent Application Locating and Monitoring (PALM) internal tracking system. The index is proposed to be performed by statistical analysis of occurrences of certain types of events as recorded in PALM; *e.g.*, instances of reopening of final rejections, second non-final actions, and the filings of RCEs, from a data set that includes events (actions by the USPTO) taken during the prosecution of all of the applications pending before the USPTO in the reporting period.

The USPTO PALM system records and tracks the types of events taken by the USPTO in each prosecution by associating a specific code with each type of event. For example, each action on the merits by the examiner is given a code, and different codes distinguish between non-final actions, final actions, and notices of allowance. Similarly, codes are associated with filings by applicant, such that a filed response to an Office action is distinguished from a filed information disclosure statement. The PALM system can be used to track and count specific occurrences of these codes, such as the number of first actions on the merits and the number of allowances. Additionally, PALM can be used to track and count more sophisticated occurrences, such as the number of occurrences of consecutive non-final rejections, or the number of occurrences where a Quayle action is followed by a non-final rejection.

The USPTO has possessed the ability to access this data, but has not previously engaged in a process designed to test and confirm, on a regular basis, information on the examination process reflected in this data. The USPTO is now proposing in this metric to initiate the process of mining this data store to reveal trends and outliers in the examination process in the form of a multi-component index. The index would be based on an algorithm that computes numerical factors, wherein each factor quantifies the occurrence of designated events during prosecution that are reflective of the quality of the patent examination. This algorithm would be used to process the raw statistical data into a single number, the QIR. The USPTO proposes to measure and make available, on a regular basis, the single QIR number as well as the subindexes upon which it is calculated, as described in detail below.

For example, an action reopening prosecution after a final rejection may indicate an issue relating to the quality of that final rejection. While there may be specific circumstances in individual applications such that the reopening of prosecution is not related to a defect in the quality of examination, the aggregate number of actions reopening prosecution after final rejection reflects a measure of the general quality of final rejections. This aggregate number can be measured on a yearly basis, and standardized against a percentage of the total number of final rejections issued in that year, resulting in a numerical factor representative of reopened final rejections. For example, if it is assumed that, on average, final rejections should be reopened in no more than 3% of applications, the quality factor F associated with reopened final rejections would be calculated as follows: F(reopened final rejections) = [Total number of reopened final rejections in FY10 – (Total number of final rejections in FY10)(.03)]. This factor F results in a raw number of applications per time period that exceed a number representative of desired quality. The factor F could also be scaled, as a percentage of the number of total final rejections per time period, in order to facilitate comparisons between different time periods.

The USPTO has identified, for purposes of the roundtable discussions, three prosecution events that may be indicative of quality concerns. In addition to actions reopening prosecution after final rejection as discussed above, second action non-final rejections and filings of requests for continued examination (RCEs) may be indicative of the quality of patent examination for the measured time period, *e.g.*, for the fiscal year or quarter.

For second action non-final rejections, it is proposed that issuance of such rejections more frequently than 5% of the total first actions on the merits for the same time period would indicate a quality concern. Operating on this assumption, the quality factor F associated with second action non-final rejections would be calculated as follows: F(second action non-final rejections) = [Total number of second action non-final rejections in FY10 – (Total number of first actions on the merits in FY10)(.05)].

Similarly, it is proposed that the filing of RCEs more frequently than 10% of the total application filings for the same time period would indicate a quality concern. Operating on this assumption, the quality factor F associated with RCE filings would be calculated as follows: F(RCE filings) = [Total number of second action non-final rejections in FY10 – (Total number of applications filed in FY10)(.1)].

Each of the various factors may then be given a weighting factor commensurate with their impact on patent examination quality. If it is assumed, for the sake of discussion, that reopened final rejections are five times more indicative of quality concerns than the RCE filings or second action non-final rejections, then the reopened final rejection factor would be given five times greater weight than the other factors. This would result in a quality index report (QIR) calculated as follows: QIR = 5*F(reopened final rejections) + F(second action non-final rejections) + F(RCE filings).

The use of global data provides an alternative to the approach of sampling applications to see whether there was extended prosecution and making individual determinations of

whether the USPTO was the cause of the extended prosecution. The USPTO does not plan to set a zero error rate benchmark for the quality index report because that would place an inordinate focus on the quality index report and possible lead to poor quality in other aspects, and also because a certain amount of extended prosecution is beyond the USPTO's control in any event. The quality index report allows the USPTO to base this measure on a review of the examination quality for all applications and without the need for subjective individual determinations. Furthermore, the use of a global dataset permits analysis of trends within targeted subgroups; for example, within hoteling examiners or within primary examiners. The QIR is not to be applied towards assigning errors to individual examiners, nor to be applied in combination with particular customer identification to single out individual filers or practitioners. Rather, the QIR would be used to indicate examination trends discernable from the global data, and could be used to develop and disseminate targeted examination guidance. The QIR is anticipated to be particularly useful in identifying outlier data representing the need for focused review of an issue or individual in order to address potential quality concerns.

In initiating this QIR metric, data would be obtained from the USPTO's PALM internal tracking system, processed through the designated algorithms, tested for reliability, and then stored in a form designed for rapid retrieval. Data gathering would thus occur on a Patent corps-wide scale, and would represent a "big picture" view of the quality of the examination process. QIR data would be analyzed to identify outlier populations that may signal the presence of quality or procedural issues that need to be addressed. The QIR is intended to complement the application-specific quality measures such as final disposition review and in-process review, and additionally may be used to gauge the effectiveness of USPTO initiatives to address quality issues identified by the application-specific quality measures. QIR data may additionally be used to identify superior examination practices, from which best practices could be identified and shared.

E.   Customer Surveys
The fifth metric, customer survey data, is a measure of the degree to which the experience of patent applicants and practitioners reveal trends and issues indicative of quality concerns. This index is currently measured by the USPTO. Quantitative customer survey data is gathered through customer responses to posed questions requiring rating of the customer's experience on a numerical scale. In this metric, the USPTO will measure customer perception of quality to complement and support the measures listed above through issuing targeted surveys to patent applicants and practitioners.

For example, the USPTO may commission a survey to ascertain customer perception of issues addressed by the Quality Index. Such a survey would ask customers to rate, on a scale of one to ten, their perception of the quality of the decisions on allowed patents in FY10, their perception of the quality of rejections made on a first action on the merits in FY10, and their perception of the quality of final rejections that were made in FY10. Customers would then rate each category based upon their personal prosecution experience for that year.

As another example, the USPTO may commission a survey to ascertain customer perception of issues not addressed by any other factors. Such a survey could address issues of customer experience with patent examiners, supervisors, and technology center directors, as well as the effects of recent training initiatives such as examiner training on formal interviews.

A sample question on interaction with patent examiners is as follows:
    Consider your experiences over the past 3 months. Please think about the in person or telephone conversations that you initiated with the Office. To what extent, as expressed on a scale of one to five, were the non-supervisory patent examiners: (1) Available to resolve your issues, (2) Attentive to your concerns, (3) Responsive to your inquiries, (4) Properly prepared to discuss the issues at hand, and (5) Able to facilitate a positive resolution.

Currently, customer survey sampling is performed by the USPTO's Office of Patent Quality Assurance and it is anticipated that they would continue to perform this function. For input into the quality metric, future surveys could be sent out in a targeted manner to address recent patent examination issues or initiatives. Alternatively, future surveys could be performed through random sampling of patent applicants and practitioners to measure customer perception of the patent examination process as a whole; for example, asking customers to rate, on a numerical scale, the quality of actions by the examiner and the responsiveness of USPTO personnel to applicants' concerns.

F.   Patent Corps Surveys

The sixth metric, patent corps survey data, is a measure of the degree to which the experience of patent staff such as patent examiners and supervisory patent examiners (SPEs) reveals trends and issues indicative of quality concerns. While this index is not currently measured by the USPTO, it is contemplated that it would mirror the customer surveys to the extent that such is practical. Quantitative examiner survey data would be gathered through responses to questions requiring rating of the examiner's or SPE's experience on a numerical scale.

For example, the USPTO may commission a survey to address issues of the examiners' experience with supervisory patent examiners and examination tools such as e-Red folder, as well as the effects of recent training initiatives such as examiner training on formal interviews. Surveys could also inquire into the examiners' experience with the quality of claim drafting; for instance, overbreadth, significant issues under 35 U.S.C. 112, 2nd paragraph, or other applicant activities. The surveys could also be directed towards other patent staff involved in the examination process, such as Training Quality Assurance Specialists (TQAS).

This sampling would also be performed by the USPTO's Office of Patent Quality Assurance. Like customer surveys, examiner surveys may be sent out in a targeted manner to address recent patent examination issues or initiatives or surveys may also be requested through random sampling of patent staff to measure their perception of the patent examination process as a whole.

3. Development and Implementation of the Metrics

As detailed above, the USPTO has engaged in a broad search, including a request for public comments, to identify valuable indicia of patent examination quality. The USPTO has distilled the results of this search into a proposed multicomponent metric of patent examination quality. This proposed multicomponent metric will be used as a "straw man" at the upcoming roundtable discussions to engage the public in a joint effort to identify sound, administrable, and quantitative metrics of patent examination quality.

Following the roundtable discussions, quality metrics will be developed and further refined. The USPTO will seek to establish, for each component, proper weighting within the whole, a lowest acceptable level, and a point of diminishing returns. Once these components have been integrated into a multicomponent quality metric, the metric will then be implemented.