Looking for insights – Quality control initiatives for enhancing patent searches☆

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A B S T R A C T

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Measuring the quality of patent searches is inherently difficult and poses many challenges. Plausible reasons for this may include the length of the patenting process, and the true value and quality of a search can often not be realised for many years after a search has been conducted. Opportunities are there, however, for searchers to take the initiative by seeking to enhance the quality and comprehensiveness of the searches they perform through different approaches that may be integrated into their day-to-day workflow. While the primary aim of these approaches is to ultimately improve the quality of searches, the insights derived serve to benefit all searchers in the work they do, regardless of their experience, and build a collective team spirit.

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1. Introduction

Novartis Institutes for Biomedical Research (NIBR) is a global pharmaceutical research organization. The NIBR Patents department is a group of approximately 60 attorneys and scientists that support and guide the global Novartis research and discovery teams in terms of intellectual property (IP) protection and strategies. NIBR Patents also includes the Search and Analytics (S&A) team which consists of 10 patent analysts who conduct IP searches to support both the attorneys and scientists in evaluating freedom to operate, patentability and novelty.

This article details some of the initiatives that have recently been implemented within the S&A team with the primary aim of enhancing the quality and comprehensiveness of the searches that are carried out. The article also highlights some of the key insights that have stemmed from these initiatives.

When searching for patent information quality is paramount. Whether it is the quality of the raw data in the applications received by patent issuing authorities [1,2], the accuracy and comprehensiveness of value-added databases [3–5], or the quality of patent searches themselves, unreliable information can have detrimental effects on the final product delivered to the client. Indeed, the quality of patent searches may be dependent on many possible factors including, but not limited to, those listed in Fig. 1:

Of the many different aspects of a search that may affect its quality [4,6], there are some that searchers may be in no position to control nor readily able to influence, such as fixed deadlines, budget constraints, and available resources and tools. The perception of what constitutes quality may vary markedly from searcher to searcher, as well as from client to client. As searchers, though, we are in a position to step back and take a look at ourselves and what we do. The definition of a 'quality search' can be subjective, but the concept may often be seen as reflecting not just the quality of the search execution itself but also the value the search imparts to the client, in terms of the report and the analysis [6].

Within the S&A team what could we do to proactively enhance the quality and comprehensiveness of our searches while at the same time look to derive insights that we could all benefit from? When conducting searches, the absence of constraints imposed by defined-processes can often be an advantage, and by continually investigating different ways of addressing the challenges posed by a request we can expand the scope of tools at our disposal [7]. The insights we derive from our quality control initiatives may highlight tools and techniques of potential value, not previously widely-used perhaps, that we can consider for use in future searches.

2. Quality control initiatives

In the past few years our team has implemented a range of different quality-based initiatives that now form part of our search workflow across the team.

2.1. Peer-review process

Within the team each of our search reports is reviewed by a colleague before they are sent to the client. Upon completion of
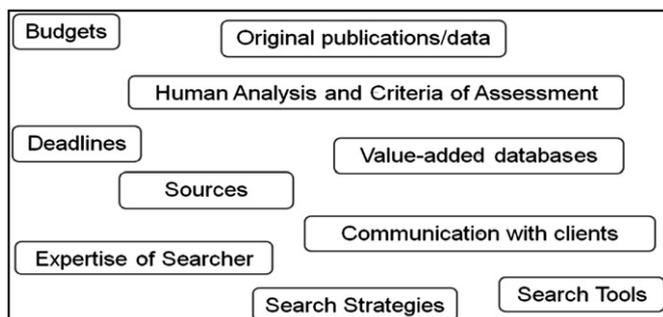
Fig. 1. Factors affecting search quality.

a report the searcher will identify a colleague in the team who is able to conduct the peer-review and they will agree the timelines for turnaround of the review, typically within 24 h.

The peer-review enables the original searcher to obtain constructive feedback on the report and strategy. If appropriate, the reviewer will offer possible alternative strategies or techniques that may be worth considering when dealing with the request or suggest modifications to the content or format of the report itself.

Examples of questions that are routinely considered during the peer-review include:

- Was the strategy comprehensive and appropriate to the request?
- Does the search address the needs of the original request?
- Does the report highlight the key findings, and is it clear and easy to read?
- Is sufficient information provided within the report and/or the strategy to enable an update to be run at a later date if required?

Feedback is provided by the reviewer either verbally or in writing, and the responsibility lies with the original searcher to determine what modifications are made to the original report and the strategy, and what further searches, if any, should be conducted.

Peer-review provides a great opportunity for all searchers to share knowledge and expertise. Moreover, the process has enabled each of us to gain insights from colleagues in the way they approach searches and report their findings. Many of these insights have since been incorporated into our own searches and reports, including aspects of report writing and terminology, the presentation of results, and methodologies used in the construction of search strategies.

2.2. Benchmarking of pre-filing patentability searches with International Search Reports (ISRs)

The results of internal pre-filing patentability searches are compared with published search reports from International Search Authorities to confirm whether our search reports contained the art cited by the patent examiners. Within International Search Reports the comparisons focus particularly on documents cited by the examiner as X or Y publications.

On occasions it may be difficult to undertake a fair comparison of internal and external search reports, especially if the claim scope and search parameters prove to be different. Comparisons to date, however, have led to several insights on approaches that are now considered when carrying out our searches. Examples of findings include the potential value, in chemistry searches, of using broad core substructure searches in combination with keyword terms concerning drug mechanisms of action or disease areas

(see Section 3.1 below), and using inventors and/or assignees as the basis for searches (see Section 3.4 below). In addition, the discussions with our clients around these ISR comparisons have helped to foster the partnership between us.

2.3. Benchmarking

Benchmarking is now integral to the team and efforts are made to benchmark both internally, within our team, as well as externally with third-parties.

Internal benchmarking involves a search request being carried out independently by two or more different searchers, with the findings and approaches then compared. Externally, we have compared the results of internal searches with the findings and strategies of the same searches undertaken by a third-party.

Benchmarking exercises have proved valuable in illustrating how different approaches may be adopted to address the same original request. Examples of points of learning include the potential value of increasing the breadth of initial queries (see Section 3.2 below), and using subset searches to gradually increase precision of a query (see Section 3.3 below).

2.4. Client dialogue

Effective communication with clients should be pivotal to any search. Contact is routinely sought throughout our search process, from the initial request from the client, through to delivery of the final search report. This dialogue with the client enables us to ensure that expectations are continually met and provides us with opportunities to enhance our offerings based on the feedback we receive [6].

The integration of each of these initiatives within our search process aims to ensure high quality, comprehensive, value-added reports. Like any team, we are each different and we each have our own individual styles but these initiatives have enabled us to share knowledge, develop best practises, and ensure a more consistent approach from the team as a whole without seeking to stifle individual creativity.

3. Key insights

Since the implementation of the above initiatives many valuable insights have been derived that have helped us enhance the quality and comprehensiveness of our searches and our own individual levels of expertise. The nature of the initiatives and the opportunities they present for individuals, in terms of peer-review and the sharing of learnings, have also enhanced teamwork within the global team. The following illustrative examples are primarily focused on chemistry and pharmaceuticals but the overarching principles of looking to enhance quality by seeking insights from others, and by extending searches beyond the parameters of the usual toolbox of resources and techniques, is applicable to any subject area.

3.1. Using broad "core" substructures in combination with search terms concerning the drug mechanism of action and/or disease area

For patentability searches in respect of a small molecule, search requests are primarily based on a specific compound or the scope of a claim. For obviousness/inventive step arguments we consider not only closely structurally-related compounds based around the specific compound or claim scope, but also the use of a broad "core" substructure query in combination with the drug mechanism of action and/or disease area of interest. These types of searches, often carried out by patent examiners, can help identify art of potential