April 28, 2014

The Honorable Michele Lee
Deputy Under Secretary of Commerce for Intellectual Property and
Deputy Director of the United States Patent and Trademark Office
United States Patent and Trademark Office
600 Dulany Street
Alexandria, VA 22314   *Via email*: CrowdsourcingRoundtable2014@uspto.gov

Re: Comments on: The "Use of Crowdsourcing and Third-Party Pre-issuance Submissions to Identify Relevant Prior Art"
79 Fed. Reg. 15319 (March 19, 2014)

Dear Deputy Under Secretary Lee:

Article One Partners, LLC ("AOP") respectfully submits its comments on the "Use of Crowdsourcing and Third-Party Pre-issuance Submissions to Identify Relevant Prior Art" 79 Fed. Reg. 15319 (March 19, 2014).

The AOP leadership appreciated the invitation to speak at the April 10, 2014 Roundtable on Crowdsourcing which was presented in the same 79 Fed. Reg. 15319 announcement. The AOP leadership commends the White House and the U.S. Patent & Trademark Office (USPTO) for their efforts to improve patent quality through an endorsement of crowdsourcing in identifying prior art. The AOP leadership also congratulates AOP researchers and other crowdsource communities, such as those on Ask Patents and Peer-to-Patent, for their accomplishments, which contributed to the endorsement by the White House.

Summary:

Article One is honored to work with and represent the AOP patent research community. AOP is fortunate to be able to reflect upon our six years of operations and growth in successfully supporting our research community. AOP is an example of a private sector crowdsourcing platform for prior art, which may be a resource for the USPTO. Additional platforms may also be utilized. Ask Patents which is part of the Stack Exchange community, and the former Peer-to-Patent project are excellent examples of other successful crowdsourcing platforms. The ambitious size and scale of the USPTO project can be supported by collaboration among high integrity private sector platforms.

In preparation for the USPTO Crowdsourcing Roundtable held on April 10, 2014, AOP conducted a collaborative set of pilot prior art searches with Ask Patents and AOP surveyed its community to provide feedback to the USPTO; the results were positive about the USPTO objectives and public interest in contributing to improving patent quality. AOP proposes that it continues to pilot prior art searches with Ask Patents. AOP summarizes its suggestions for the USPTO as follows:

1) The success of crowdsourcing is based on valuing individual contributions of the crowd first and foremost, as well as all the stakeholders, including those seeking information, researchers, patent applicants and the broader community impacted by access to this comprehensive global evidence;

2) The optimal approach to motivating a crowd to provide prior art is through monetary compensation; and,

3) The USPTO can gain access to prior art quickly and efficiently by presenting the private sector with parameters for its needs and by subscribing to database(s) populated by the results from private sector crowdsourcing research platforms. The USPTO can benefit from crowdsourcing by enabling stakeholders to do what they each do best—the USPTO evaluating prior art evidence and the private sector crowdsourcing prior art.

Comments:

I. The Best Practices of Article One and Contributions to Developing A Successful USPTO Crowdsourced Prior Art Program for All Stakeholders

Article One crowdsources patent research. AOP is the world's largest patent research community with over 32,000 researchers from 170 countries and more than one million visitors to www.ArticleOnePartners.com. The AOP global patent research community reflects advancement in patent research aligned with the America Invents Act's ("AIA") recognition of the globalization of the U.S. patent system. AOP accomplishes this by posting technology descriptions of prior art research requests on is platform and asking the AOP research community to find prior art with the same technology descriptions. AOP provides monetary compensation to the AOP research Community. AOP and the AOP research community work on a technical-mapping basis and AOP does not practice law.

Crowdsourcing provides the most comprehensive and exhaustive access to relevant prior art. As presented in the article entitled "Crowdsourcing - Killer App of Patent Wars," crowdsourcing provides a significant and necessary improvement over traditional approaches to accessing relevant prior art, such as individual computer searches.

After six years of operations, AOP is in a unique position to reflect upon accomplishments and lessons learned. AOP's primary insight is that the success of crowdsourcing relies on valuing individual contribution. It is based on this insight that AOP first and foremost is honored to work with our research community.

1) The success of the crowd is based on valuing individual contributions of the crowd first and foremost, as well as all the stakeholders, including those seeking information, researchers, patent applicants and the broader community impacted by access to this comprehensive global evidence.

The general notion of crowdsourcing involves a crowd performing requested projects. However, a broader perspective on the use of a crowd is to include all stakeholders in defining the need, performing the work, evaluating the result and arriving at a conclusion. This perspective is particularly important for the USPTO's ambitious project, which seeks to address a large and increasing number of patent applications filed annually.

The stakeholders include those seeking information, researchers, patent applicants and the broader community impacted by access to comprehensive prior art research. As such, the use of crowdsourcing in accessing relevant prior art is more than the process of identifying patent applications, creation of infrastructure to process requests for research and the mechanism for delivering results. For crowdsourcing to successfully address the goal of strengthening the patent system, it is necessary to understand the needs of the Examining Corps as users of the prior art, the motivations and incentives of those performing research and those impacted by more comprehensive prior art, such as patent applicants and members of the public.

A. The Examining Corps is the Vital Link Connecting Prior Art from the Public to Patent Quality

The USPTO leadership and Examining Corps are in the best position to identify the parameters of successful crowdsourcing prior art research. USPTO Examiners are vital to the success of the program as they are in the best position with their expertise and deep analysis of individual patent applications to make use of efficiently provided prior art collections. For crowdsourcing to produce the highest value, the Examiners as recipients of prior art collections should control the parameters of crowdsourced searches. By providing Examiners control over the parameters of crowdsourced searches, the Examiners' time and efficiency is prioritized. The message is the examiners are in control and these are just additional tools they can use for them to be better Examiners.

There is a focus on patent quality for certain types of patent applications, such as those involving business methods and software. These may be areas for an initial program. Examiners are in the best position identify optimal technology areas that can benefit from the use of crowdsourcing and make use of the prior art collections. Within a given technology area, Examiners also are in the best position to determine the type and timing for using crowdsourcing to request prior art. A search at the initial review of the patent application can provide a more comprehensive collection of prior art with which to initiate the Examiner's review. Another alternative is to trigger a search at a stage when the Examiner is contemplating a Notice of Allowance with a search focused on the point of novelty.

The length of time for the crowdsourced search to be completed is also important, as Examiner's typically have one to two days to complete a search within their formal procedures for examining patent applications. There are a number of options on how to optimally provide collections which meet the needs of the Examiners in a timely manner. This can include a process driven approach that selects patent applications that meet pre-determined parameters that suggest complexity on a set timeline, as well as ad hoc

Examiner requests for applications that fall outside of the process and could benefit from the contributions of the crowd.

Crowdsourcing can optimize the limited and valuable time of the Examiners by providing diverse and relevant content specifically for patent applications where the Examiners want additional insight. On the other hand, simply collecting and transmitting responses from the crowd without analysis of the collection can impose additional work on Examiners with voluminous number of prior art references with a determination of relevance requiring filtering. Crowdsourcing produces the highest quality prior art references, but a natural by-product of this approach is some quantity of "noise" which must be filtered-out to arrive at the high-quality submissions and ensure an efficient examination. To reduce noise and accomplish the goal of accessing relevant prior art through crowdsourcing, a peer review system can be implemented. However, the peer review system should be implemented in such a way that the review and ranking of the most relevant references does not include interpretation by the public. A peer review system that directly or indirectly enables researcher interpretation or qualitative input may potentially create an inaccurate record associated with the file wrapper and/or provide a mechanism for misuse such as an *ad hominem* negative description of the patent application or prior art references.

Private sector platforms, such as Article One, can provide selected technology subject areas, such as business methods, e-commerce and software areas for an initial approach to searches to present to the research community. AOP can also select applications based on specific parameters such as number of claims, length of claims, claim language complexity and additional parameters. However, the Examining Corps is in the best position and authority to definitively select the areas in which they can benefit from input from a global research community. Within the selected areas, there may be several options for identifying specific applications to search. One option is to allow the assigned Examiner to decide when a particular application may benefit from crowdsourced prior art request. Another option is a programmatic approach that uses random sampling of technology areas as a means for managing volume in the program that addresses scalability.

Another methodology to identify patent applications for inclusion in the program is a patent pending innovation by AOP, for which AOP is willing to provide a license to the USPTO. This methodology identifies an early quality grading of the patent application before any examination by leveraging a number of statistical metrics that can be proven to be indicative of a particular level of quality. This can be highly leveraged in early identification of patent applications that might benefit most from a crowdsourced prior art search. Because the quality indicator is based on a relative comparison of applications to each other, making this public can also inform applicants as to how and when they need to change the application in order to improve the likely quality and thereby contribute individually to both their individual patent quality as well as the overall quality of the patent system. Applications that do not grade well on this relative basis will essentially be self-selecting their applications for crowdsourced searches.

B.   The Researchers Who Perform the Crowdsourced Searching

The researchers include members of the public who self-select to participate in a crowdsourcing platform. The researchers are rewarded for their participation, work efforts and contributions. The researchers are also provided with tools and education to optimally conduct their searches. As the engine behind any crowdsourcing platform, an energized and motivated research community is paramount to the success of the effort.

During the Crowdsourcing Roundtable on April 10, 2014, AOP presented data about how AOP's crowdsourcing platform supports a prior art research community. AOP discussed that the use of crowdsourcing for accessing prior art is unique in the sense that comprehensive results include research performed in multiple languages globally and access to publications from global geographies.

AOP presented the best practices in crowdsourcing that the company has established in over six years of operations. These include carefully developed approaches to attract, grow, and reward the community. AOP also supports the community through frequent feedback and education. These best practices have been developed through broad and extensive engagement with the community. Highlights are provided in the AOP Crowdsourcing Roundtable presentation, but additional information is valuable for a number of reasons. First, these core competencies represent years of learning. Second, these competencies are in areas that are not core to the functioning of the USPTO and, thus, are not a good investment of USPTO resources to try and master. Third, these can be leveraged to optimize the core competencies of the USPTO in general and the Examiners specifically without distracting them from their important work.

The first area of best practices is in the area of recruiting and retaining researchers. There is a saying that success begets success. The statement is not truer than it is in crowdsourcing. The two biggest factors are work opportunity and trust. Work opportunity brings potential researchers to the platform and it keeps them coming back. The existence of that work in a reliable way over time helps develop a loyal and productive community. Trust that their work will be valued, that they will be treated consistently and fairly and compensated in a predictable way is also fundamental to a long term relationship with the community. The private sector has already developed these two important factors.

The second area of best practices is motivating researchers. Not every project is of equal importance or complexity. Not every project needs the same amount of research or input. Extensive experience over 1,500 research projects has helped us understand not only how the crowd is motivated or de-motivated by certain level of compensation over time but also how various amounts of compensation will create more or less research. This understanding is fundamental to getting the scope and breadth of input you want and need at a fair price and in a way that is respectful of the time of the community. This is a very delicate balancing act as you address the needs of the community to get the highest return for their efforts and the needs of the clients (or the patent office) to get the best results at the lowest possible price.

The third area of best practices is managing the community, which is a two-

dimensional activity—overall program management and specific project management. Overall community management requires policies and practices, terms and condition, and regular communication in order to ensure equitable treatment of each member of the crowd and a level playing field on which to perform their research. Non-monetary compensation and recognition is also a part of the overall program management. When it comes to a specific prior art request, which AOP calls "Study," the experience and know how to write project instructions in a way that will generate predictable results (in scope for the problem at hand and targeted to specific criteria) is important. Descriptions that are too general will result in volumes of "out of scope" submissions. Instructions that are too specific can result too few submissions, minimal participation, and quality art likely being missed.

The fourth area of best practices is managing quality, or said another way, reducing the haystack to only the most relevant submissions. Related to this is the process of sorting through and assessing the relevance of the submissions to prioritize those of the most "potential" value. As noted above, effectively writing the instructions for the project will put it on a good footing for receiving quality art at a high level. However, if effective, the art will come in volume and potentially create another problem—information overload. Crowdsourcing companies with extensive experience have mastered the challenge using a combination of skilled people, process and tools to help quickly sort through the submissions, assess potential relevance and then perform more intimate analysis of each document to create a refine corpus of information that can inform the examination process. The Examiner is then relieved of this distraction and can focus their valuable time on the assessment of these pieces of prior art perhaps using the same sort of analysis tools.

All of the above core competencies and best practices are fundamental to the success of any crowdsourcing program. Without the combination of these best practices a crowdsourcing program may not scale and may not deliver the value at a rate the US patent system will require to "move the needle" on patent quality.

In addition, AOP has established a scorecard prepared for each prior art collection the community produces in response to AOP's request for prior art. The AOP Study Scorecard presents the output from the crowd based on sources of publications and other art submitted to an AOP Study. In addition, the AOP Study Scorecard highlights the number of English and non-English references, the geographic, language, technology and academic backgrounds of the contributing researchers, the variety of keywords and databases searched during a Study, and the frequency of duplication of references by the research community.

Additional statistics can be added such as a checklist of searches conducted according to the USPTO templates for searches for various class and subclasses. Just as the AOP Scorecard illustrates how comprehensive a Study has been conducted, the USPTO's Search Template does the same for any search under a particular Class or Subclass. The USPTO provides a Search Template that sets a certain standard of completeness for any search. For every classification area, the Search Template defines the search tools and methodologies, including both US and non-US patents and non-patent literature resources that should be considered for each search.

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The information presented in the AOP Scorecard merely skims the surface of a highly sophisticated platform. What the information in the AOP Scorecard implies is a crowdsourcing model that creates a user experience for AOP researchers worthy of their valuable time and skills and a platform that motivates them in continuing to work on our platform.

AOP also serves as an avenue for individuals who seek new career opportunities within the patent industry. AOP provides a platform that exposes these individuals to be exposed to patent-related work. For example, during the April 10, 2014 Crowdsourcing Roundtable two USPTO Examiners in the audience, a new member of the Examining Corps and a retired Examiner introduced themselves to our team. The new Examiner began his career in patent law based on after working with AOP, while the retired Examiner is considering continuing his career with projects on AOP's platform.

AOP is also proud to have hosted a program in 2013, with full support from the USPTO and other prominent companies, geared towards providing training and opportunities to military veterans. Through this program, AOP introduced interested military veterans to careers within the patent industry. AOP provided six weeks of intensive education and training to participating military veterans, including career learning sessions and competitive research projects. AOP compensated the best participating military veterans.

The objective of improving our patent system, which remains to be a key driver for economic growth, prosperity and job creation, is noteworthy. In preparation for the Crowdsourcing Roundtable, AOP presented the USPTO and White House crowdsourcing endorsement and initiative to the AOP community through a survey. The AOP community was prolific in their input and interest and commitment to the goal of strengthening the US patent system that fosters innovation. More than 82% of the respondents agree that their participation on a platform that crowdsources patent research ultimately improves patent quality. An even higher percentage, over 93%, would be interested to participate in a program that seeks to examine the quality of US patent applications. More than 95% said some form of monetary compensation would be critical to the success of such a program.

Article One firmly believes that for a crowdsourcing platform to succeed, it must not only provide benefits to recipients of the crowdsourced prior art and the general public. It must also provide monetary compensation to the crowd to incentivize them for their work.

> 2) The optimal approach to motivating a crowd to provide prior art is through monetary compensation.

The notion of monetary compensation is a strongly held view of stakeholders on this topic. At the April 10, 2014 Roundtable, there were a variety of views presented, from researchers receiving other incentives and benefits to providing monetary compensation. The AOP community survey presented that monetary compensation is an important aspect of performing the research. However, at a high level, the amount of compensation is not as critical to the researchers. One approach to bringing together these views is to allow researchers to either receive the compensation directly or donate it back to the

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crowdsourcing initiative. Using this approach, the potential donation from researchers can further support the monetary needs of the program. AOP followed this framework as part of its support of the Peer-to-Patent program in 2009-2010 and as part of educational pilot Studies for universities, such as Stanford, where professors presented AOP Studies to classes and rewards were provided as grants as compensation to students was not supported by school policies.

While Article One's view is that monetary compensation of the crowd performing the research is a critical part of a successful program, other viewpoints were expressed at the April 10th Roundtable. There also were questions at the Roundtable about funding the USPTO project. The solution AOP proposes below includes funding for the overall project of a subscription model for access to database(s) populated using crowdsourced prior art that is within the USPTO's traditional business model for accessing prior art collections. Part of this funding could be to compensate the crowd. One objective of improving patent quality is to reduce the longer term costs resulting from overly broad issued patents in the private sector and subsequent proceedings before the USPTO, such as post grant proceedings. An important result of improving patent quality over time is to reduce the need for subsequent and duplicative analysis of issued patents. These long term cost reductions should be factored into an evaluation of the funding to crowdsource prior art. Article One believes that part of that funding should be to compensate the crowd. However, AOP respects that there are differing views on crowd compensation. Irrespective of the USPTO's decision on crowd compensation, AOP will continue to support this project.

C.   The Broader Community Impacted By Crowdsourced Evidence

The most direct beneficiaries of crowdsourced prior art are Examiners to assist in prosecuting applications. This also inures to the benefit of patent applicants by driving higher quality patents and therefore stronger property rights. Just as the White House and USPTO have identified patent quality as an objective of the output of the USPTO, there also is a trend among patent owners to provide the highest quality patent applications or input to the USPTO to support not only their individual property rights but also the patent system. The notion of the creation of patents of high quality by patent applicants also contributes to the goals of the USPTO leadership. The patent industry then becomes a partner by doing its own part in presenting applications of quality and substance to the USPTO.

At the same time as providing benefits to patent applicants, the USPTO must protect the efficacy of the patent prosecution process. Presenting pending applications to and requesting input from the public is not without risk. It can create untended or even intentional negative evidence as part of the prosecution record or file wrapper.

This is not unlike the risk of third party submissions where comments about the references and their relevance are specifically requested by the USPTO. The USPTO then has the burden of reviewing each submission to ensure that it does not present argument or other data that is not within the boundaries of commentary limited to relevance of the response prior art. The USPTO implements a system of reviewing each third party submission to address this risk and reject submissions which do not meet strict requirements.

Exposing an application to the public can expand on this risk, as researchers may provide commentary which is outside the scope of factual comments on relevance. On the level of scale of a fully developed system, a manual system of review is unrealistic. Therefore, to protect the patent applicant, the crowdsourcing platform must eliminate the ability of researchers to provide qualitative feedback on the prior art. AOP addresses this issue by presenting the notion to the community that the prior art speaks for itself. AOP provides a way to identify the relevant technology description in the publication without allowing the entry of any additional commentary.

The notion of peer review of crowdsourced prior art also has been discussed to assist with developing efficient collections. AOP's view is that peer review on the basis of a positive or negative indication (such as a thumbs up or down) for prior art overall enables the peer element of the crowd to assist in prioritizing the references while again protecting the patent application from unintentional negative evidence. To avoid intentional misuse of the system, any mechanism for submission to the USPTO must be evaluated periodically to establish policies to protect users of the USPTO systems.

Another area where the use of crowdsourcing can impact the patent applicant community is in the selection of particular applications for crowdsourced research. Where a subset of all pending applications is presented to the public, AOP believes that a set of parameters should be established and published to support the objective selection of applications. Several bases for inclusion in the program were described above. These include starting with problematic technology areas, a random sampling of applications in general or within selected technology areas, and applications which on a case-by-case basis Examiners identify as benefitting from crowdsourced prior art. The notion of objectively evaluating the quality of applications as one criterion for selection is very interesting. This places responsibility to the patent applicant community to increase the quality of their work from the first instance.

Incorporating the needs and expectations of patent applicants into the framework for crowdsourced prior art will acknowledge the vital role that applicants play in improving patent quality. In this sense, the notion of crowdsourcing expands beyond providing prior art to the USPTO. Moreover, all stakeholders including Examiners, researchers and patent applicants play important roles in improving patent quality. As a result, patent owners and the public benefit from a stronger patent system.

II.   A Proposed Solution for How to Leverage Collective Knowledge For the USPTO

Article One view the primary challenges of enabling a crowdsourced research option to include the following:
- Getting relevant prior art from the public in front of US patent examiners;
- Knowing where prior art is most needed (i.e. challenging applications);
- Doing so at scale;
- Requiring a formal submission process; and,
- Potential procurement and technical requirements.

AOP proposes that the best path is to leverage the best practices and scale of private entities with the insight, needs and skills of the US Examining Corps. Crowdsourcing in any area is a valuable but challenging process. By taking advantage of the skills and expertise developed in private industry, and allowing private industry to continue to solve these problems on their behalf, Examiners can quickly gain access to meaningful prior art on the patent applications that matter most to them.

The complexity of crowdsourcing touches on many areas including:
- Recruiting, training and retaining a diverse and skilled research community
- Implementing policies of participation that reduce costs and workload while ensuring quality prior art; and,
- Understanding the connection between rewards, reward mechanisms and the breath and scope of research that will be generated.

On the other hand, the USPTO has deep insight into the examination challenges for patent applications in general and for applications in various technology areas specifically. The patent office could develop (or more likely, already has developed) a priority list that would suggest an application profile(s) where it most consistently need help. These profile characteristics might include:
- Specific technology classes (i.e. software and business process);
- Number of independent claims;
- Number of words in the independent claims;
- Total number of claims; and,
- Language complexity analytics relative to the claims.

With industry awareness of the above criteria, crowdsourced prior art search firms could easily and consistently run high volumes of research projects focused on these priority applications and, thereby, create a growing database of prior art. The USPTO could subscribe to this database or databases and gain immediate access to application-specific prior art and/or broader collections of prior art related to applications in specific technology classes. The search firm would be responsible for using those subscription fees to create and fund an economic model required to generate high-quality prior art at scale for these meaningful applications.

In addition to research projects being run consistently against the defined application profiles, patent Examiners could selectively request prior art on other applications that might be outside the profile characteristics but could benefit from additional prior art. These ad hoc requests could be incorporated instantly into new research projects and the information made available to the Examiner in the same way.

An additional benefit of this solution is that it relieves the "public" of what otherwise might be an arbitrary decision about where they can add the most value. At the same time, it relieves the "public" of the cost, time and responsibility of formally submitting the art to the office, or of deciding which pieces of art are the best (which is the purview of the Examiner, not the public). Instead, it creates a relatively small and focused corpus of relevant prior art

that can be easily searched and examined by the patent Examiner on an application-by-application basis.

The end result is a win–win. The private sector can leverage their assets (expertise, know-how, scalable community, etc.) and create a sustainable economic model that ensures high-volume and high-quality delivery of prior art. The patent office can be relieved of the requirement to develop these new skills and expertise in an area that is otherwise non-core to their function, while remaining focused on examining applications. It also relieves them of the complexity of defining an economic model, rules and policies (all of which are in a constant state of evolution) so they can focus on the job at hand, which is examining art relative to patent claims.

The above solution can start with one or more crowdsourced prior art search firms. In the long term, it may be determined that all of the art from various participants could be or should be consolidated into an aggregated database. This can be done by a single vendor acting as an aggregator, by the USPTO directly, or by the USPTO publishing API that will allow vendors to enable their data for searching by the Examiners. The good news is that none of these challenges need to be addressed initially. Rather, the office can start and gain immediate benefits while it continues to assess and optimize as the program grows.

While the USPTO is evaluating the input from the Roundtable and Comments, AOP also proposes to continue pilot Studies based on a collaboration between AOP and Ask Patents. This continuing momentum and engagement with the public can provide additional data and grow interest in the project.

Conclusion:

AOP believes that for a crowdsourcing initiative to achieve the overall goal of strengthening the US patent system that fosters innovation, we must first and foremost identify the needs of all stakeholders from the Examiners, to the research community and patent applicants, and the general public. As an optimal approach, the crowdsourcing initiative needs to provide motivation for researchers to provide prior art through monetary compensation. Finally, the crowdsourcing initiative must enable stakeholders to do what they do best—the USPTO Examiners in evaluating prior art references and the research community in identifying relevant prior art.

AOP is honored to work with members of the public who have self-selected to research on our platform. AOP feels fortunate to represent the unique view of researchers worldwide as a representation of the public. AOP supports our researchers on an educational level about the patent system and the identification of prior art globally. AOP believes that the AOP platform is a positive interaction between the public and the patent system based on gaining an appreciation for the value and creation of patents of high quality. Thus, AOP strongly supports the public interacting with the patent system in a positive manner to improve the quality of patents. The efforts by Deputy Under Secretary Lee to promote crowdsourced prior art within the USPTO and the White House endorsement are an energizing foundation to improve our patent system. The US patent system is at the core of the American dream and growth and prosperity. Article One supports these efforts and appreciates the opportunity to be a part of this historic endeavor.

Respectfully submitted,

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