

WIPO CONVERSATION ON INTELLECTUAL PROPERTY (IP) AND ARTIFICIAL INTELLIGENCE (AI)

Organized by
the World Intellectual Property Organization (WIPO)

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SUMMARY OF THE REPLIES TO THE NOTE ON APPLICATIONS OF AI TO IPO ADMINISTRATION

Prepared by the Secretariat

INTRODUCTION

1. The International Bureau (IB) of WIPO conducted a survey on the use of Artificial Intelligence (AI) tools at national and regional Intellectual Property Offices (IPOs) in 2018 with a view to facilitating discussions at the first WIPO meeting to focus on AI applications at IPOs. A summary of the first survey was issued as document WIPO/IP/ITAI/GE/18/1. The Meeting of IPOs on ICT Strategies and AI for IP Administration held from May 23 to 25, 2018, agreed that the field of AI is changing rapidly and that it would be useful to share experiences and best practices through an online collaboration platform. The IB also created a web site dedicated to AI in which “Index of AI initiatives in IP Offices” compiled the status of a number of IPOs with regard to their use of AI technologies (see https://www.wipo.int/about-ip/en/artificial_intelligence/).
2. The IB issued Note C. 8862, dated March 25, 2019, to update the status of IPOs on AI applications for their administration. This document is a summary of information gathered

following that invitation. A total of 19 IPOs had responded to the Note as of August 15, 2019¹. The original responses are included in document WIPO/IP/AI/GE/19/2. Any IPO not having submitted its contribution should send their contribution to ip3ai@wipo.int.

3. In the Note, the following questions, as previously, were asked:

- (a) Any relevant business solutions making use of AI and big data (such as classification of application files, image search of trademarks, machine translation, etc.);
- (b) A description of specific AI systems in use (such as the name of a commercially available system or an in-house development system, a description of functions, data used to train the AI system, etc.); and
- (c) Experience and other useful information to share with other IPOs (reliability, human interface, any impact on the work, lessons learned, etc.).

SUMMARY

4. From the beginning of 2018, a number of IPOs made steady progress in experimenting and deploying AI-assisted tools for their administration. Assuming that those IPOs which have not yet replied to the recent Note still continue to explore and test AI tools as reported before, the IB estimates that at least 20 IPOs are using AI applications either on trial or in the course of ordinary operations.

5. Most IPOs, which reported on their trial use of AI applications, are now prepared to proceeding to the next stage of rolling out AI tools to a larger number of users, as experience is gained and confidence built. Among administrative tasks with increasing application of AI, the survey shows that AI tools prove to be efficient and useful in those areas requiring routine and rule-based work such as formality checks, the determination and allotment of the most relevant classification symbols and internal distribution of application files to the most relevant examination unit. Most IPOs use commercially available business intelligent tools using AI technologies, while a few IPOs developed AI tools of their own. One IPO (United States Patent and Trademark Office (USPTO)) has established an advanced analytics program that combines big data/ big data reservoir (BDR), machine learning, and artificial intelligence (AI) to enhance understanding of USPTO policies, processes, and workflows.

6. Most common areas of AI applications widely used by IPOs are as follows:

Linguistic tools

- Machine translation (Canada, Mexico, Russian Federation)

Administrative tasks

- Internal distribution of files (United Kingdom)
- Allotment of the unique identification number of an applicant (France, Germany)

¹ Austria, Canada, Colombia, Estonia, Finland, France, Germany, Japan, Madagascar, Mexico, Norway, Philippines, Poland, Republic of Korea, Russian Federation, Singapore, Spain, the United Kingdom, and the United States of America (19)

- Identification of SME applicants (France)
- Verification of data captured for digitization of paper documents (Canada, Spain)

Advanced Analytics Program

- AI is used as cognitive assistance in a program combining big data/ big data reservoir (BDR), machine learning, and artificial intelligence (AI) to enhance understanding of USPTO policies, processes, and workflows in order to provide the most useful and relevant information to determine patentability by an examiner during prosecution (United States of America)

Automatic Classification

- Automatic (pre-) classification by IPC of patent applications (France, Japan)
- Prediction or data entry of relevant NICE class (Colombia, France, Japan, Spain)
- Automatic classification of Vienna symbols for figurative elements of trademarks (France, Spain)
- Automatic classification of Locarno symbols for figurative elements of industrial designs (France)

Patent Search

- Prior art search in the area of patents (and utility models) by semantic or cognitive searching method in use of AI-assisted search tools (Canada, Colombia, Finland, Germany, Japan, Philippines, Russian Federation, Spain, United Kingdom, United States of America)
- Chemical formula search in the area of patents (Colombia)
- Proof of Concept projects for image search in the area of patents and industrial designs (Japan)

Trademark Search

- Phonetic and figurative search of trademarks (Colombia, Japan, Norway, Philippines, United Kingdom, United States of America)

Industrial Design Search

- Proof of Concept projects for image search in the area of industrial designs (Japan)
- Data entry of industrial design description (France)

Other areas

- Support tools for help desk services (Japan)
- Data analysis for economic research and strategic analysis (Canada, United Kingdom)
- Data analysis of IPO administration for enhancement of business intelligence, internal management and customers relations (Colombia, Philippines, Spain)
- Exploration of the use of Quality Chat Bots for concept questioning to the Manual Patent of Examination of Procedures (United States of America)

7. Some IPOs shared specific experience of positive results from AI applications. For instance, Colombia found AI search of figurative elements of trademarks very effective in enhancing search quality and significant time-saving for examiners, and data analysis of administration allowed the Office to improve services to customers in a timely manner. In semantic patent prior art search, which is a complex task, AI tools have not fully met the expectation of patent examiners. For instance, the Norway IPO evaluated that a AI-assisted tool does not significantly speed up the prior art search and has not deployed the system for all examiners. The United Kingdom IPO clarified that their intended approach is designed to supplement, not substitute human expertise and judgement, with a “human-in-the-loop” approach and that this approach aims to maximize the machine performance by combining AI and human intervention. The use of AI as cognitive assistance in a program called BDR (big data reservoir) at the USPTO also aims to enhance the prosecution of patent applications through human and machine collaboration.
8. Some offices reported that they would complete pilot projects for Proof of Concept or experimental use of AI tools in the second half of 2019. The IB welcome further inputs from IPOs to share more experience in using AI tools for IPO administration.
9. The WIPO Secretariat also made good progress in developing effective AI tools. A new center of excellence for AI, Advanced Technologies Application Center (ATAC), created in 2018, will continue to drive the development of WIPO AI tools. WIPO Translate, already used by some IPOs and 11 organizations of the United Nations, has been trained for translation of text in specific domains in nine languages.
10. In 2019, two new IP-specific AI tools were launched:
 - IPC CAT, used by two-thirds of examining Patent Offices polled actively used in their prosecution work, which allow them to get most relevant IPC symbols by inputting an abstract of detailed description of new technologies; and
 - WIPO Brand Image Search tool, which exhibits phenomenal search capability of similar device marks or figurative elements of trademarks from perspectives of shape, color, composite and concept, and integrated in Global Brand Database.
11. Mindful of concerns over a growing digital and emerging technology gap among countries, the WIPO Secretariat is committed to inclusive access to WIPO AI Tools. Normal use by the public remains free on the WIPO web site, while we have provided professional assistance with generous terms and conditions to several UN organizations and IP Offices for customization of WIPO AI tools to their needs to promote operational efficiency in the field of digital transformation. With a view to saving time and resources which otherwise might be spent on duplicative efforts to develop similar AI tools for IPO administration, WIPO Secretariat will make WIPO AI Tools available free-of-charge to IPOs. The use of common AI tools by a number of IPOs will ensure coherent approaches and predictable and accountable results arising from work carried out by AI tools in various IPOs. The WIPO Secretariat will continue to extend AI development to areas of common interest of IPOs to the benefit of all IPOs.

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