

ADOPTION OF ARTIFICIAL INTELLIGENCE BY IP REGISTRIES EMERGING ISSUES COMMITTEE ARTIFICIAL INTELLIGENCE SUBCOMMITTEE¹

Artificial Intelligence Subcommittee of the Emerging Issues Committee

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August 2023

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Acknowledgements

This Committee Report was produced by the Artificial Intelligence Subcommittee of the Emerging Issues Committee. Special thanks to all the members of the said committee who contributed strongly to the production of this report.

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I. INTRODUCTION.

Government trademark offices are gradually adopting artificial intelligence ("AI") for trademark prosecution, examination, clearance, and administration of intellectual property registries. As compared to private enterprise, government trademark offices are necessarily slower to adopt AI because they must answer to government hierarchies, rules, and statutes. Some countries have adopted AI with limited function, some have adopted AI for patent and copyright examination but not trademarks, and many appear to not yet have adopted official policies or have chosen not to report them. Of the registries identified in this article, many are still in the beginning stages and are seeking input and collaboration with constituents outside of government offices, like universities and private technology councils. Built-in or learned bias was cited as a major concern by some registries in adopting AI.

The Emerging Issues Artificial Intelligence Subcommittee ("AI Subcommittee") obtained information for this article by conducted online research and also posing a series of questions to government officials to identify the scope of AI initiatives and adoption to date.2 In addition, the AI Subcommittee consulted the World Intellectual Property Office ("WIPO") Index of AI initiatives in IP Offices worldwide at https://www.wipo.int/about-ip/en/artificial_intelligence/search.jsp ("the WIPO Index"). This article also includes information from Use of Artificial Intelligence by IP Registries, an article authored by the Artificial Intelligence and Decisions by Machines Subcommittee in 2019 ("AI 2019

² The following questions were posed to participating government officials: (1) Are you aware of any policy by any country in your ambit that currently implements AI (in any manner) to help manage any aspect of trademark prosecution; (2) Do you know of any trademark office in your purview that is using AI-based methods or tools to review the goods and services description for trademark applications; (3) Are you aware of any AI-based methods or tools used to enhance trademark search methods or to perform confusion analysis (like the FDA's POCA score); (4) Are you aware of any legislative initiatives concerning AI in any countries for which you are responsible; (5) Are there collaborations between a trademark office currently using AI and another that is currently not; (6) Is there a date when your office intends to adopt AI processes; (7) Does your office have guidelines and policies you can share; (8) Are there any successes or failures with respect to implementation you can provide?

Committee"). 3 In all, the AI Subcommittee finds evidence of increased attention to adoption of AI by government registries. Nevertheless, human decision making has not been supplanted by AI in the field of trademarks.

II. IMPLEMENTATION BY COUNTRY.

Α. Australia.⁴ The Australia Trademark Office reported using AI in customer service virtual assistance tools for goods and services selection, and trademark searches. "Alex," Australia's AI system, handles customer interactions. In addition, the Alex AI system employs the Trade Mark Assist interface which actively guides users through the process of selecting marks, filing an application, and conducting a trademark search. Goods and services drafting is implemented via a machine learning algorithm. The system also implements Deep Neural Networks for text and image analysis. Further, the Australia trademark office uses TrademarkVision Image Recognition software and Trade Mark Assist (TM Assist) to help customers search their trademarks. Natural Language Processing (sentence-transformers) help applicants find goods and services based on both semantics and matched search terms. The goal is to reduce time in identifying relevant goods and services and improving the quality of trademark applications. Another development is the TM checker, an AI-assisted trademark availability check currently in pilot. Users can enter brand names and logos and the AI assisted algorithms identify potentially similar registered trademarks and marks that pose distinctiveness issues.

B. **Austria**. ⁵ AI is used in customer service tools to check marks and calculate fees before applying.

C. **Brazil**.⁶ The National Institute of Industrial Property has implemented a chatbot for customer service to respond to basic IP related questions.

⁴ USE OF ARTIFICIAL INTELLIGENCE BY IP REGISTRIES, AI 2019 Subcommittee; see also WIPO, Index of AI Initiatives in IP office https://www.wipo.int/about-ip/en/artificial_intelligence/search.jsp.
⁵Laura Hammel, Attorney-Advisor, Office of Policy and International Affairs, U.S. Patent and Trademark Office, U.S. Department of Commerce, as interviewed by AI Subcommittee member, Phil Barengolts, Partner, Patishall McAuliffe.
⁶ Id.

5

³ USE OF ARTIFICIAL INTELLIGENCE BY IP REGISTRIES, Emerging Issues Committee, Artificial Intelligence and Decisions by Machines Committee, October 2019

D. **Canada**.⁷ The Canadian Intellectual Property Office ("CIPO") is not currently seeking to engage AI in its trademark prosecution workflow. CIPO's current view is that no "black box" solution will ever be advanced. Canadian legislative context prevents use of AI for making decisions. CIPO's policies are necessarily limited by the Canadian Treasury Board Secretary which has applied a directive on the use of AI that is broad and overriding. The Trademark Act stipulates that the Registrar must be the arbiter, and that power cannot be delegated to another person or to a machine. According to CIPO interviewees, the overriding philosophy currently is that machines should not make ultimate decisions about registrability because the criteria of the decision-making process must be known, and AI is counter to that principal. CIPO believes that AI will incorporate unknowable biases in decision making and for this reason, there needs to be an overriding framework for any initial concepts of bias. This "no AI" principle is written into the Trademark Act of Canada which requires that a physical person (e.g., the Registrar) make decisions only on the reliance of data and not on AI. The Registrar cannot delegate its decision power to AI.

CIPO distinguishes between algorithms, machine learning and AI. CIPO primarily employs computer algorithms to automate review of trademark applications for examiners and no machine learning is involved. CIPO algorithms are used for reviewing registered trademarks, reviewing decisions made in the last three (3) years, limiting non-essential data, and incorporating a goods and services manual. Since assessment of goods/services is the primary backlog, algorithms using Natural Language Processing are used to (1) improve response timelines, (2) reduce inventory, and (3) improve quality of examination. CIPO has been using algorithms to assess confusion for the last 20 years by use of verbal and figurative input (Vienna Codes) and use of goods/services from the Nice Classification system.

The aim of the project is to use AI to review the goods and services statements in pending Canadian trademark applications, and to issue notifications to those applicants whose applications veer from international classification standards. The AI technology does not identify

⁷ Research and interviews conducted by Nathaly J. Vermette, DS Lawyers Canada, and Mark Penner, Fasken, Toronto, Canada, with the Canadian Intellectual Property Office (CIPO), namely, Pierre Mesmin, Director General – Trademarks and Industrial Designs Branch, Iyana Goyette, Deputy Director – Trademarks and Industrial Designs Branch, and Pauline Collart Dutilleul, Deputy Director for Innovation, Science and Economic Development Canada (collectively, "CIPO").

with specificity which goods or services are at issue. Rather, automated CIPO letters give applicants an opportunity to review their specifications with a trademark agent/lawyer and rectify issues prior to examination of the application with a view to reducing and/or eliminating objections once the application is examined.

While CIPO policy is not to supplant human judgement, as of April 2022, CIPO has implemented AI technology to help address backlog of trademark applications.⁸

E. **Chile**.⁹ The Chilean Trademark Office uses AI in image searching. Since 2018, the National Institute of Industrial Property has partnered with the Engineering School of the University of Chile to develop image searching applicable to both trademarks and patents.

F. **China**.¹⁰ In April 2016, the Trademark Office established a working group dedicated to trademark graphics searches, which began to explore the application of artificial intelligence technology in trademark graphics searches. In July 2018, a trademark intelligent search function was put into a test use in six local trademark examination centres of the Trademark Office. On January 25, 2019, the Trademark Office officially started to use the trademark graphics intelligent search system in its trademark examination. According to a short report issued by the Trademark Office in Jan 2019, the above graphic search system is conducive to transit the manual search work by the examiners to more intelligent manner, easing the workload of the examiners and reducing the circumstances where the examiners apply different standards in determining the similarity of graphics.

The future of development of AI according to the China central government's 14th Five Year Plan¹¹, the Trademark Office will be responsible for following two tasks that have an AI component: (1) to build a smarter information system for trademark registration and management and to enhance the intelligence level of the entire process of trademark examination and trial; and (2) to effectively curb bad faith trademark registration applications by

⁸ Hammel, Office of Policy and International Affairs, U.S. Patent and Trademark Office.

⁹ WIPO, Index of AI Initiatives in IP offices.

¹⁰ Research conducted by Zhen (Katie) Feng, Office Managing Partner, Hogan Lovells

¹¹ "The 14th Five Year Plan for National Economic and Social Development of the People's Republic of China is a major plan made by the Chinese government for the period 2021 to 2025 setting out major social and economic development initiatives." Zhen Feng, Hogan Lovells.

improving the intelligence level of information collection and analysis and enabling automatic troubleshooting of problem applications.

G. **Czech Republic**.¹² The preparatory phase for image searching for trademarks will be completed by end of 2023, with expected availability starting 2024. An automated IP help desk is in development and in cooperation with Czech universities, a chatbot will be implemented to improve help desk services, including voice recognition.

H. **European Union Intellectual Property Office**¹³. AI Subcommittee members interviewed representatives from EUIPO regarding use of AI. EUIPO is implementing a Digital Evolution Programme of which AI is one of several pillars. Initially, AI was implemented to support EUIPO employee training. A second purpose evolved to include enriching the experience of customers, as well as to improve and enlarge the databases for AI.

EUIPO reports that AI was firstly used for translations of websites and of decisions, image processing, and text/document analysis for goods/services comparisons. Image Processing (Image search), Text/Document Analysis, and Goods/Services Comparison are current projects.

EUIPO implementation process first starts with AI tools components used for internal, back-office Examiner use. According to feedback, AI tools are moved to front-office use by EUIPO employees and customers. Usability of AI tools is of highest concern. The main goal for AI implementation is to improve decision making.

The "black-box" problem identified by the Canadian Trade Mark Office is also of concern to EUIPO. A clear line is drawn on "self-learning." AI tools are used as a supporting method and decisions are made by humans. There is close collaboration between examiners and IT developers so that examiners widely understand the functions and work methods of the AI in use. Pre-selected data needs to meet criteria before it is used for AI tools. The "Focus on Results" methodology is closely adhered to with AI tools tested internally for desired functionality.

¹² Hammel, Office of Policy and International Affairs, U.S. Patent and Trademark Office.

¹³ Research conducted by Ivo Rungg, Massimo Maggiore, Tat-Tienne Louemebe and Laura Martin.

EUIPO is participating in the international community in two ways: 1) collaboration with national IP offices, which could include sharing code (chat bot and transfer/adaption methods); and 2) international cooperation in the form of panels, discussion boards and the like for exchange of ideas. In certain cases, lateral cooperation is possible. A detailed explanation of EUIPO's plans for AI can be found in the EUIPO AI Roadmap – State of Play, INTA EUIPO Bilateral Meeting – December 2022 at www.euipo.europa.eu. The 2025 plan purports to further EUIPO's opportunity to harness current AI based solutions for formalities, classifications, image search, goods and services comparisons chatbots. The EUIPO plan indicates EUIPO will make use of Machine Learning, Natural Language Processing and Deep Learning techniques office wide. Discrimination, or bias, has been identified as a key pitfall of machine learning.

Additional information about AI based tool implementation is available through various 14 links. Goods and services identification tools discussed are at https://euipo.europa.eu/ohimportal/en/web/guest/-/new-ai-based-comparison-of-goods-andservices et al. eSearch Plus is discussed at https://euipo.europa.eu/ohimportal/en/new-imagesearch. Of critical assistance to litigators, improved machine translation found in e-Search Case Law enables a search on case law for gaining immediate general understanding of the content of а particular judgment before obtaining certified translations. See https://euipo.europa.eu/ohimportal/en/key-user-newsflash/-/asset publisher/dlGJZDH66W8B/content/improved-machine e-translation-in-esearch-caselaw/. EUIPO also has published a 2025 strategic plan at https://euipo.europa.eu/tunnelweb/secure/webdav/guest/document-

library/contentPdfs/Strategic_Plan_2025/project_cards/SD3_Artificial_Intelligence_implementa tion_PC_en.pdf.¹⁵

I. **Indonesia**.¹⁶ The Indonesia Trademark Office has implemented AI tools for image searching.

¹⁴ Hammel, Office of Policy and International Affairs, U.S. Patent and Trademark Office.

¹⁵ *Id*.

¹⁶ *Id*.

J. **Japan**.¹⁷ The JPO has published the "Action Plan for Utilization of Artificial Intelligence (AI) Technology (FY2011-2026 edition)", the "Background of the Development of the Action Plan for Utilization of Artificial Intelligence (AI) Technology (FY2022-2026 edition) and "(Reference) Major Achievements of the Action Plan to Date." While patents appear to be the primary focus, use of AI is being assessed for trademark image searching, prior character searching, responding to phone inquiries, digitizing paper documents, prohibiting public access to certain types of submissions, and judging distinctiveness of marks. Overall, the JPO still appears to be in the "consider utilization of AI" stage. As part of the plan for implementation, a "machine learning competition" was held in 2021 to improve search accuracy. The predictive models of the top winners will be integrated into the image search system of the JPO. Further, a four-year plan is in place to create tools to assign classifications to designated goods/services and similarity determinations between goods and services.¹⁸

K. **Republic of Korea**.¹⁹ An image searching tool has been implemented. Plans are in place for a customer service tool.

L. **Malaysia**.²⁰ MYIPO has implemented an intelligent image-based search solution for trademarks. This tool enables the examiners to search for visually similar trademarks efficiently.

M. **Norway**.²¹ The Norway Trademark Office uses Acsepto, a commercially available software tool, which incorporates AI for trademark image searches. In addition, Norway has plans to use robots to search web sources. "The AI technology used is commercially available trained algorithms for coding and trained search algorithms for coding images." Norway has been testing Distributed Ledger Technology / Blockchain, using Ethereum II for registration and maintenance of licenses and pledges of IP rights, with testing to conclude in 2023. The goal of the system is to "increase availability to and transparency towards valuable data sets, create possibility of 100% self-services, and to allow businesses to create value added service."

¹⁷ WIPO, Index of AI Initiatives in IP offices.

¹⁸ Hammel, Office of Policy and International Affairs, U.S. Patent and Trademark Office

¹⁹ *Id*.

²⁰ Id.

²¹ WIPO, Index of AI Initiatives in IP offices

N. **Philippines**. ²² The Intellectual Property Office of the Philippines ("IPOPHL") currently uses the AI system provided in other online databases, such as the Madrid Goods and Services Manager and the EUIPO TM Class/Harmonized Database. At present, during trademark application, applicants have an idea whether the specification of the goods/services they indicated are acceptable or not since the section where they encode the description is linked to the EUIPO's TM Class which in turn verifies whether the specification is acceptable.

O. **Russian Federation**. ²³ As of 2020 a search engine for trademarks, Geographic Indications and Appellations of Origin was put into operation. "The new system uses neural networks for image similarity search as well as for intelligent word recognition on marks."

P. **Singapore**. ²⁴ The Singapore Intellectual Property Office ("IPOS") has implemented a commercial AI-powered image-based search solution on both the e-services web portal and mobile app (IPOS GO). The solution enables the public and examiners to search for visually similar trademarks and conceptually similar trademarks efficiently.

Q. **Thailand**. ²⁵ Thai DIP initiated a trademark image search project in January 2022. They intend to use Clarivate Image Recognition software for examiners to search for existing trademark images based on an uploaded image. The tool will also be available to the public. Currently, DIP is in the testing stage, and the tool will be launched in early 2023.

R. **United Kingdom**²⁶. The United Kingdom Intellectual Property Office ("UKIPO") is actively identifying certain of its online tools as powered by AI. In October 2020, UKIPO introduced "Pre-apply" service, UKIPO's first service powered by AI and created to help individuals and businesses improve their chances of successfully registering a trade mark. The tool does so by (i) identifying any existing similar trademarks and presenting them to the user and (ii) helping users identify the right groups of goods and services for their proposed trade mark. The Pre-apply service has been designed around customer feedback and UKIPO is continuously improving the Pre-apply service to improve an applicant's chances of successfully

²⁵ Id.

²² Hammel, Office of Policy and International Affairs, U.S. Patent and Trademark Office.

²³ WIPO, Index of AI Initiatives in IP offices.

²⁴ Hammel, Office of Policy and International Affairs, U.S. Patent and Trademark Office.

²⁶ Research conducted by David Gourlay, Partner, MacRoberts, LLP.

registering a trade mark. See <u>IPO launches trade mark pre-apply service - GOV.UK</u> (www.gov.uk).

The Pre-apply tool is aimed primarily at people who have not applied for a trade mark before and have little knowledge of the application process. Applicants can use the tool before applying for a trade mark to check: (1) if there is already a similar trade mark; (2) the proposed trade mark against basic trade mark rules; (3) whether aspects of the proposed trade mark are not appropriate i.e. offensive words or protected symbols; (4) the right groups of goods and services for the proposed trade mark; and (5) estimated application costs. The tool does *not* save the data that is entered by the user, give legal advice or form part of the formal trade mark application process. The tool can be accessed at <u>Who is completing this application? - Apply to register a trade mark - Intellectual Property Office (ipo.gov.uk)</u>.

A review of the operation of the tool was carried out after its first year in operation with UKIPO announcing that it is receiving higher quality trade mark applications following the launch of the new service. See <u>IPO's first AI-powered tool improves quality of TM applications -</u> <u>GOV.UK (www.gov.uk)</u>.

In April of 2021 following the successful launch of the Pre-apply tool. UKIPO launched its "One IPO Transformation", a five-year programme to transform IP services and enhance the value of UKIPO services to the UK economy. See IPO launches One IPO transformation programme - GOV.UK (www.gov.uk). UKIPO's Transformation Prospectus sets out the details of UKIPO's One IPO Transformation. See <u>One IPO Transformation Prospectus - GOV.UK</u> (www.gov.uk). UKIPO intends to make further use of the opportunities brought by AI by building AI technology into future services, as part of the One IPO Transformation Programme. It will, for example, be possible to access, view and manage all a user's IP in one place through the One IPO system with trade marks scheduled to be added to the One IPO system in 2025. Although the Transformation Prospectus does not provide further details of the specific AI technologies that will be used, UKIPO is on record as saying "*Potential opportunities making further use of AI could include: (a) improved automated text searches using Natural Language Processing; (b) automated help and guidance, such as pre-apply services across all rights, and*

chatbots that could, for example, suggest classifications of goods and services; and (c) advanced validation and authentication features across customer accounts and application processes to help improve the quality of applications we receive".

Following an agreement between the UK and the WIPO at the General Assemblies in Geneva in July 2022, UKIPO joined WIPO's Global Brand Database and will be adding more than 3 million UK registered trade marks to the AI-powered global trade mark search system. In November 2022, the UK Government furthered its commitment to incorporating AI by launching a consultation on proposals for the legal changes needed to deliver the Intellectual Property Office's 'One IPO' transformation programme. It is intended that the proposed changes will update the law and remove legal barriers, allowing UKIPO to be more innovative and deliver world-class digital services. They will also address current inconsistencies between different IP rights. The consultation closed 6 January 2023 See on https://ipoconsultations.citizenspace.com/ipo/legislative-changes-for-ipo-digitaltransformation/?utm source=IPO+gov+delivery#GD.

Importantly, Part A of the consultation focuses on proposed changes to the law to enable digital transformation of services. The consultation notes that

"Unleashing the power of AI is a top priority in the National AI Strategy and part of the government's plan to be the most pro-tech government ever. We already provide a pre-apply tool for trade mark customers that makes use of AI to perform checks. This helps improve their chances of registering a trade mark and leads to better quality applications. AI is a transformative technology which government wants to make full use of in a reasonable and proportionate manner. This will allow the IPO to stay world-leading in the quality and effectiveness of the services it provides to customers." The UK Government intends to automate manual checks where human assessments is not needed. Uses for AI and automation could include (1) providing automated help and guidance for customers, such as pre-apply services across all rights; (2) validating and authenticating customer details and application contents; (3) checking the goods and services classification of trade marks; and (4) assisting with prior right searches.

However, as in other countries, several UK legislative provisions require "the registrar" or "the examiner" to carry out specific tasks. This implies that the law requires manual checks. By way of illustration, the following UK trade mark provisions require human input on formal checks and requirements.

• Trade Marks Act 1994 Section 37(1)

The registrar must examine whether an application to register a trade mark complies with the Act and rules. This includes both the requirements for filing and substantive matters.

• UK Trade Marks Act 1994 Section 64(4)

The registrar may, on request made in the prescribed manner by the proprietor of a registered trade mark, or a licensee, enter any change in his name or address as recorded in the register.

• Trade Mark Rules 2008 Rule 6(2)

If there is any doubt over a priority claim, the registrar may require that the applicant files documentary evidence for the registrar to check or verify.

These requirements may significantly limit the amount of automated processing that can occur. UKIPO is, therefore looking to modernise and future-proof IP legislation to allow automation more easily.

The UK Government is inviting views on introducing a similar general enabling provision into UK IP legislation to permit automated processing and computer-based decision making.

Recognising that automated processing could cause errors or create problems, a corrective mechanism could be included in the provision. This could include an option for a human intervention to carry out or verify the process, and a route to challenge actions or decisions taken by an automated service. At the same time, the UK Government recognises that a general enabling provision permitting automation of processes and decisions for IP rights could introduce uncertainty in the IP system. An alternative way to enable automation could be to make individual amendments to the legislation. These would remove explicit obligations for a person to do a particular task, allowing a computer to perform it. An example is given of Section 64(4) of the UK Trade Marks Act 1994 which, as above, allows the registrar to enter a change of name or address in the register following a request. This provision could be amended to say, for example, that the change of name or address can be entered in the register, without saying how this could be done. This would allow for an automated process to update the information of a new name or address in the register based on the customer's request. However, it is thought that this individualised approach to making changes would not futureproof the IP framework. The UK Government would need to make further changes to the legislation to automate other services later.

The exact timing for implementation of any reform is not currently known as the consultation process will need to close first and the UK Government will then need to take stock of the views expressed before proceeding with any proposed reforms.

S. **United States**. "The United States Patent and Trademark Office (USPTO) Al program includes improvements for Trademarks Operations in the following areas: 1) developing a quality review smart form with analytics; 2) ingesting office actions on the big data reservoir with advanced analytics including usage and descriptive statistics; and 3) determining the efficacy of deep machine learning for image searching for Trademarks."²⁷ The USPTO has announced an artificial intelligence / emerging technologies partnership, "an ongoing cooperative effort between the USPTO and the Al/ET community, including academia, independent inventors, small businesses, industry, other government agencies, nonprofits, and

²⁷ WIPO, Index of AI Initiatives in IP offices.

civil society." ²⁸ The USPTO is seeking input from AI/ET community regarding implementation of AI and ET to enhance quality and efficiency of examination of patents and trademarks. A series of meetings have been held, and the public can obtain information about the AI/ET program at <u>aipartnership@uspto.gov</u>. Further, the USPTO is participating in the National Science and Technology Council, Machine Learning and Artificial Intelligence Subcommittee "to ensure intellectual property equities are accounted for during interagency discussion." As reported by the Office of Policy and International Affairs, U.S. Patent and Trademark Office²⁹, government trademark offices are sharing experiences with each other on implementing AI in their trademark application process. More information about the future of artificial intelligence and emerging technologies at the USPTO can be found at <uspto.gov/initiatives/artificial-intelligence.>

T. **World Intellectual Property Office**. WIPO identifies image searching within the Global Brands Database in its list of AI implementation. Image search "allows trademark owners to identify visually-similar trademark, as well as other brand-information records from among the millions of images in the collection."³⁰ The WIPO database allows users to carry out a registered trade mark search in a database of more than 50 million records from approximately 71 national and international collections. The database search engine includes a fully integrated AI-powered image search, which determines trade mark image similarity by identifying shapes and colours in marks. The technology uses deep machine learning to identify combinations of concepts within an image to find similar marks that have already been registered.³¹

III. CONCLUSION.

IP Registries worldwide are taking a cautious but steady approach to adoption of AI. The "black box" problem of accumulative AI processing that creates bias in decision making is a concern that government trademark offices are attempting to address at the outset. The data indicates that government registries are adopting and testing AI and that collaboration and

²⁸ See https://www.uspto.gov/initiatives/artificial-intelligence/public-sector-engagements.

 ²⁹ Hammel, Attorney-Advisor, Office of Policy and International Affairs, U.S. Patent and Trademark Office.
³⁰ WIPO, Index of AI Initiatives in IP offices.

³¹ See <u>UK Intellectual Property Office joins WIPOS global brands database - GOV.UK (www.gov.uk)</u>

technology sharing between trademark offices will hasten global adoption to revolutionize delivery of trademark prosecution services.