

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

Organized by
the World Intellectual Property Organization (WIPO)

Geneva, September 27, 2019

ORIGINAL REPLIES FROM IPOS IN ENGLISH, FRENCH OR SPANISH

Prepared by the Secretariat

AUSTRIA

Dear Madam/Sir

Please find enclosed our (Austrian Patent Office) response to the survey on the application of artificial intelligence.

It is of formal nature only as we can currently not provide a substantial update.

Kind regards
Johannes Werner

Johannes WERNER
International relations (head of department)
Dresdner Straße 87
1200 Vienna

Dear Madam, Sir,

Many thanks for inviting us to participate in the follow-up survey on the application of Artificial Intelligence (AI) in the administration of Intellectual Property Offices (IPOs) as well as for the valuable work you have conducted on this issue so far.

Regarding the application of AI in the Austrian Patent Office the situation remained quite similar to the status we submitted to you almost two years ago.

Unfortunately, again we are not in the position to answer the questions raised in the survey in a more detailed manner as we are in a continuous trial and consideration phase with several commercial providers in the field of pre-search, pre-classification and classification.

Nevertheless, we still are very interested in the developments and results in this special field. We would be very pleased if you could keep us informed about the outcome of this survey and possible follow-up actions.

Our contact person in this special matter remains:
Dr. Dietmar Trattner
Technical Vice-President
Dietmar.trattner@patentamt.at.

We hope this small piece of information was helpful for you and are looking forward to any further future work.

Kind regards,

Elisabeth Lager-Süß

CANADA

To whom it may concern:

Please see below Canada's replies to the questions outlined in the International Bureau's Circular C. 8862 of March 25, 2019.

Best regards,

Nicolas Lesieur

Nicolas Lesieur
First Secretary | Premier secrétaire
nicolas.lesieur@international.gc.ca
+41 (0) 22 919 92 51
Avenue de l'Ariana 5, 1202 Genève, Suisse
Permanent Mission of Canada | Mission permanente du Canada
Government of Canada | Gouvernement du Canada

<p>Do you have any relevant business solutions making use of AI/big data (e.g. classification of application files, image search of trademarks, machine translation, etc.)?</p>	<p>CIPO uses the following AI/big data business solutions:</p> <ol style="list-style-type: none"> 1. Machine Translation / Transliteration Tools 2. Patent prior art search 3. Data analysis 4. Optical Character Recognition
<p>A description of specific AI system in use (e.g. the name of a commercially available system or an in-house development system, a description of functions, data used to train the AI system)?</p>	<p>1. Machine Translation / Transliteration Tools</p> <p>CIPO's Trademark Branch uses commercially available translations and transliterations tools (Onscope) to automatically search trademarks that are in a foreign language or characters. This tool relies on machine learning algorithms to execute searches.</p> <p>2. Patent prior art search</p> <p>CIPO's Patent Branch uses commercially available semantic AI search engines (Questel, STN, Clarivate Analytics) to assist in conducting searches for prior art and citations. These tools rely on machine learning algorithms to better detect linkages between citations, applications, and the current state of the art.</p> <p>Patent examiners also make use of Google's algorithms, specifically within their "Translate", "Patent", and "Scholar" tools for machine translation and access to full-text documents and claims forms from contributing international patent offices in real time with citation metrics and related scholarly publications.</p> <p>For data manipulation CIPO uses the Vantage Point text-mining tool for discovering knowledge in search results from</p>

	<p>patent and literature databases while providing methods to refine, automate, import, etc. the raw data produced.</p> <p>3. Data analysis:</p> <p>CIPO's Economic Research and Strategic Analysis Unit uses AI to help them conduct semantic searches and to collect, scrub, and analyze large datasets.</p> <p>4. Optical Character Recognition (OCR)</p> <p>CIPO's Patent Branch utilizes commercially available OCR tool, Omnipage, to produce fully searchable text for Abstracts, Claims, and Disclosures. Omnipage uses AI algorithms to accurately recognize text on images.</p>
Experience and other useful information to share with other IPOs (reliability, human interface, any impact on the work, lessons learned, etc).	N/A
Contact person for further consultation on this matter (name, title, and e-mail address)	Name: Saida Aouididi Title: Senior Policy Analyst, Policy and International Relations Office, Canadian Intellectual Property Office E-mail: saida.aouididi@canada.ca

COLOMBIA

Estimados Señores,

Mediante la presente comunicación la Superintendencia de Industria y Comercio de la República de Colombia remite la respuesta a la **Circular 8862** sobre Inteligencia Artificial (véase adjunto).

Agradecemos confirmar la recepción de este correo.

Atentamente,

Juan Pablo Mateus Bernal
Abogado
Grupo de Asuntos Internacionales
Superintendencia de Industria y Comercio
email: jmateus@sic.gov.co
Tel. (57)(1) 5870000 Ext. 30008

RESPUESTA DE LA SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO DE LA REPÚBLICA DE COLOMBIA A LA CIRCULAR 8862 DE 25.03.2019 DE LA OMPI

1. Indique si su oficina utiliza soluciones que apliquen la IA y la inteligencia de los datos (por ejemplo, para la clasificación de archivos de solicitudes, la búsqueda de imágenes de marcas, la traducción automática, etcétera)

1.1. Tratándose de Signos Distintivos.

Para el examen de fondo de signos utilizamos el programa ACSEPTO, como herramienta de búsqueda para analizar la confundibilidad y establecer los precedentes del signo.

En la versión que utilizamos actualmente en producción para la búsqueda figurativa:

- Los códigos de Viena se comparan dentro de un árbol de preguntas de operador lógico.
- El reconocimiento de imágenes está basado en un conjunto de descripciones determinantes (forma, textura, color), que se calcula a partir de procesamiento de imágenes.

Para la versión en pruebas que próximamente entrará producción para la búsqueda figurativa:

- La clasificación de imágenes y reconocimiento basado en técnicas de aprendizaje profundo de Inteligencia artificial: "Convolucionales", redes neuronales utilizadas para ambos proporcionan una clasificación de Viena automático basado en el aprendizaje de un gran conjunto de datos existentes y también producen descripciones de imagen basado en características aprendidas.

1.2. Tratándose de Nuevas Creaciones

Tratándose de patentes la Oficina colombiana aplica la inteligencia de los datos a través de una herramienta denominada TABLEAU, la cual es utilizada para la gestión y seguimiento de las solicitudes de PI presentadas ante nuestra jurisdicción.

Además de lo anterior, en la Dirección de Nuevas Creaciones los examinadores de patentes cuentan con bases de datos de búsqueda especializadas, como lo son STN, PATBASE y ORBIT, las cuales utilizan algoritmos que facilitan la búsqueda de estructuras químicas, la

desestructuración de textos por términos clave para afinar los criterios de búsqueda y la comparación de documentos encontrados.

2. Describa los sistemas específicos de IA que se utilicen (por ejemplo, indique el nombre de un sistema disponible a escala comercial o de un sistema que se haya desarrollado a un nivel interno, describa las funciones, señale los datos utilizados para el aprendizaje del sistema de IA, etcétera).

2.1. Tratándose de Signos Distintivos.

Para la gestión utilizamos el programa "TABLEAU", como herramienta analítica de datos, el cual funciona con un modelo de regresión lineal, con algoritmos de proyecciones y predicciones que nos permiten pronosticar y proyectar cuantas solicitudes de signos se presentaran en un periodo de tiempo y a qué clasificación de Niza corresponde. Actualmente existe una nueva versión que funciona como un asistente virtual por comandos de voz, pero aún no se encuentra disponible para nuestro uso.

2.2. Tratándose de Nuevas Creaciones

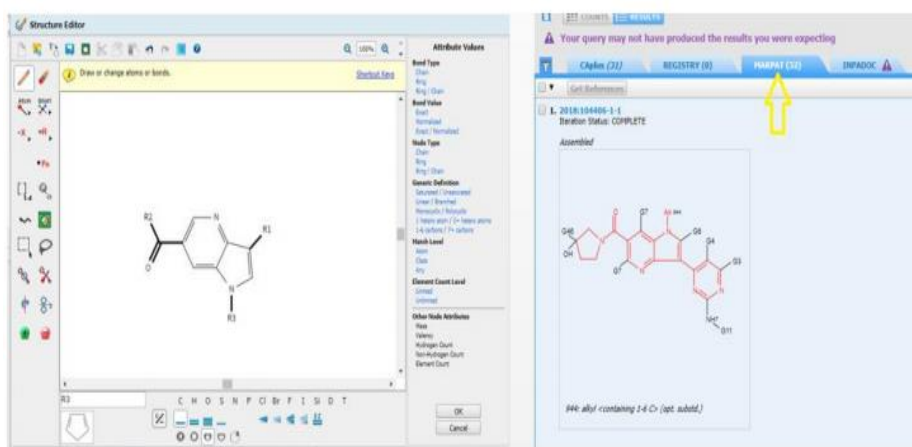
Se utilizan las herramientas de inteligencia de datos que describimos a continuación:

TABLEAU: Es una herramienta con funciones analíticas que permite la visualización de datos, dependiendo del tipo de categorización, trasforma la información en gráficos dinámicos que ayudan a la proyección y/o predicción mediante algoritmos previamente establecidos.

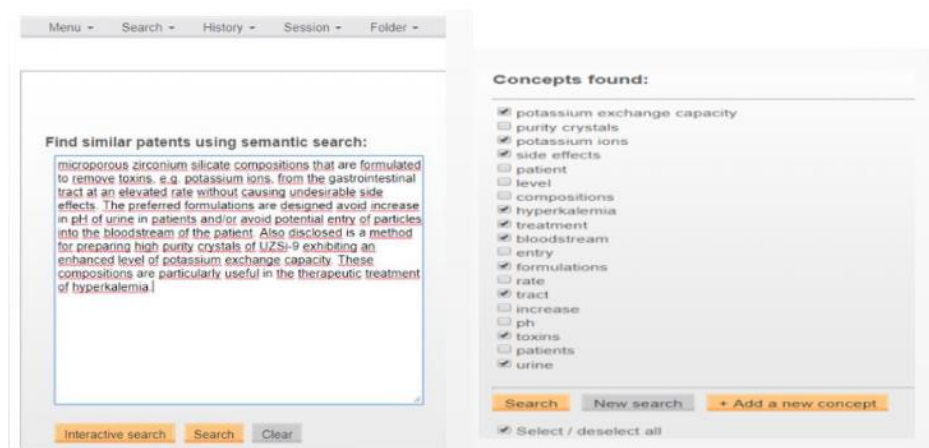
Esta herramienta es susceptible de mejora, toda vez que se está evaluando la posibilidad de incluir una nueva función que se relaciona con dar órdenes mediante comandos de voz. Esta nueva característica personalizaría y mejoraría la precisión con que se analizan los datos.

Por otro lado, las modalidades de búsqueda que relacionan la utilización de IA en las bases de datos STN, PATBASE y ORBIT, son:

Búsqueda por estructura química: El sistema se encarga de encontrar similitudes, teniendo como referencia la estructura dibujada por el examinador.



Búsqueda mediante párrafos compuestos: El sistema se encarga de clasificar las palabras claves que son extraídas del párrafo que el examinador inserta.



Finalmente, desde 2018 nuestra oficina cuenta con la posibilidad de clasificar o reclasificar solicitudes de patente y modelos de utilidad en todos los campos de la tecnología durante la búsqueda realizada por los examinadores, a través del proveedor privado Chemical Abstract Service (CAS).

Por otra parte, el Sistema de Información de Propiedad Industrial colombiano (SIPI), cuenta con la posibilidad de realizar búsquedas por textos completos incluidos dentro del documento de la solicitud de patente, es decir, dentro del capítulo descriptivo o reivindicatorio, el resumen o el listado de secuencias genéticas.

Lo anterior permite el acceso a la información relevante de las solicitudes tramitadas por nuestra Oficina y mejores herramientas de búsqueda para nuestros examinadores.

3. Indique las experiencias y otra información útil que pueda intercambiarse con otras OPI (sobre la fiabilidad, la interfaz humana, las posibles repercusiones en el trabajo, la enseñanza, las enseñanzas extraídas, etcétera).

Estas herramientas nos permiten proyectar decisiones más asertivas y acordes con las necesidades del sector y al derecho del solicitante, nos vuelve punto de información referente para otras oficinas en temas relacionados con registro marcario, reconoce el trabajo de la Superintendencia de Industria y Comercio en materia de Propiedad Industrial, por la fiabilidad de nuestros procesos, nos permite hacer un examen más riguroso y ágil en la búsqueda figurativa del signo en trámite y cumplir con los tiempos de respuesta.

Por otra parte, a nivel interno, TABLEAU nos permite hacer seguimiento y control a los indicadores de gestión y hacer una planeación de nuestros recursos para cumplir a cabalidad las proyecciones de las solicitudes.

Desde la aplicación de inteligencia de datos, por medio de las herramientas desarrolladas en esta Oficina, se evidencian mejores resultados en la gestión de los trámites a cargo de la Dirección de Nuevas Creaciones. Lo anterior debido a que contamos con información en tiempo real que permite un seguimiento constante de las diferentes etapas del procedimiento, lo que nos permite tomar medidas inmediatas dentro de los procesos y de esta manera mejorar la prestación de servicio a los usuarios.

Aunado a lo anterior, las herramientas nos permiten generar proyecciones dentro los procesos de la Dirección de Nuevas Creaciones, estableciendo los recursos necesarios para cumplir efectivamente con las solicitudes a nuestro cargo.

4. Indique las personas que puedan consultarse en relación con este asunto.

Nombre: Sra. María José Lamus Becerra **Cargo:**

Directora de Nuevas Creaciones **Teléfono:**

(57)(1)5870000 Ext. 30101

E-mail: mlamus@sic.gov.co

Nombre: Sra. Catalina Carrillo Ramírez

Cargo: Profesional Universitario Delegatura para la Propiedad Industrial

Teléfono: (57)(1)5870000 Ext. 30036

E-mail: ccarrillor@sic.gov.co

Nombre: Sr. Jorge Barguil Cogollo

Cargo: Técnico Administrativo Delegatura para la Propiedad Industrial.

Teléfono: (57)(1)5870000

E-mail: jbarguil@sic.gov.co

ESTONIA

Dear Francis Gurry

Hereby we inform that the Estonian Patent Office doesn't currently have any AI system.

Best regards

Igor Skorohodov

Lawyer

Financial and Administrative Department

The Estonian Patent Office

+372 627 7916 | igor.skorohodov@epa.ee

Toompuiestee 7, 15041 Tallinn, Estonia | www.epa.ee/en

FINLAND

Dear Madam/Sir,

Please find enclosed the reply of the Finnish Patent and Registration Office to Note C.8862.

Best regards,

Mika Inki
Principal Patent Examiner
Patents and Trademarks
Finnish Patent and Registration Office (PRH)
+358 29 509 5231
mika.inki@prh.fi
www.prh.fi

Postal address: FI-00091 PRH, Finland
Street address: Sörnäisten rantatie 13 C, Helsinki

Finnish Patent and Registration Office

To: Secretariat of WIPO
Answer to Note C. 8862

May 29, 2019

Madam,
Sir,

Here is the requested information on the artificial intelligence (AI) systems used at the Finnish Patent and Registration Office.

(i) During the past three years, we have been testing AI systems for assistance in the classification and novelty search of patent applications. The main system we have tested is Teqmine by Teqmine Analytics Oy.

(ii) The Teqmine system finds publications that are similar to the application being analysed by using the vocabulary and bigrams of the application. The input to the system is the text (description, claims, and abstract) of the application. Based on the frequency of the words and bigrams extracted from this input file, the system determines the activity levels of a number of topics, and determines a number of similar publications where these topics are active at similar levels. These topics were generated when the system was trained on the whole patent corpus (WO, US, and EP patent publications). The output file is in a format that can be read into EPOQUE Net. The output file consists of about 2000 patent families ranked by similarity. The system runs on our own virtual server, which can be accessed only from within our own network. Therefore, the system can also be used for non-public applications. The system processes a patent application in seconds.

(iii) The publications in the output file are usually broadly related to the topic of the application. Often at least a portion of the most common patent classes of the publications are related to the application in a meaningful way. However, in many cases the publications are not related to the application or invention, especially when the application uses very common words to describe the invention. The system thus cannot be relied upon to find the relevant prior art, but it may in

some cases point towards a useful direction. Currently, the system does not significantly speed up the prior art search. Therefore, we have not deployed the system for all examiners. We have compared the system with public applications to other existing commercial systems, such as InnovationQ Plus and IPScreener, and we intend to test systems such as IPRally. However, we have not yet decided to install any of the other systems on our own servers, even though this is possible for some the systems.

(iv) A contact person for further consultation: Mika Inki, Principal Patent Examiner,
mika.inki@prh.fi

Yours sincerely,
Mika Inki
Principal Patent Examiner
Finnish Patent and Registration Office
(PRH)

FRANCE

Bonsoir,

Voici les éléments de réponse au courrier C.8862. Ces éléments sont volontairement succincts ; n'hésitez pas à me contacter pour des détails.

- i) Solutions opérationnelles utilisation l'IA dont l'INPI dispose
 - L'INPI a mis en production ce printemps un outil de distribution des demandes de brevets aux pôles d'examen

- ii) Description des systèmes d'IA particuliers qui sont utilisés
 - Nous avons utilisé des bibliothèques d'algorithme librement accessibles

- iii) Données d'expérience et autres informations utiles à partager avec les autres offices de PI
 - Les projets que nous explorons actuellement sont :
 - o Aide « intelligente » à la saisie des libellés des classes pour une demande de marque et à la saisie des libellés des descriptifs pour une demande de dessins & modèles
 - o Classification automatique des demandes de marques figuratives et semi-figuratives (dans la classification de Vienne) et des demandes de dessins & modèles (dans la classification de Locarno)
 - o Inscriptions : vérification d'une chaîne de droits
 - o Pré-classement CIB des demandes de brevets
 - o Attribution d'un identifiant unique à chaque entreprise titulaire de droits de PI (en France, il s'agit du numéro SIREN)
 - o Identification des PME prêtes à déposer une demande de titre de PI

- iv) Personne à contacter
 - Vous pouvez indiquer mes coordonnées.

Nicolas Sennequier
Directeur de la prospective et des systèmes d'information
INPI | 15 rue des Minimes | CS 50001 | 92677 Courbevoie Cedex
01 56 65 85 99 | 06 89 32 22 51 | nsennequier@inpi.fr | www.inpi.fr

GERMANY

Dear Sir or Madam,

The German Patent and Trade Mark Office (DPMA) appreciates the opportunity to provide updated information on the application of Artificial Intelligence (AI) in the administration of IPOs (Circular C. 8862).

The DPMA uses AI in the administration of the office primarily in the field of classification and prior art search. In these two fields of application the following progress has been made since the end of 2017 (DPMA's reply to Circular C. 8706):

- **Electronic classification tool:** At the time of the DPMA's response to Circular C. 8706 the electronic classifier existed as a prototype and had been trained with approximately 350,000 documents of publications of patent applications and patent grants until that date. Since then, the electronic classifier has been improved and trained with many more documents (German model: approximately 2.6 million DE and EP patent documents; English model: approximately 3.6 million EP patent documents). At the time being the electronic classifier runs in trial operation and is expected to be set into production for classification of patent and utility model applications and for interactive classification in autumn of this year.
- **Cognitive Search:** In late 2017 the cognitive search program for prior art search of the DPMA was in its first steps from a project to a prototype. Since then, the prototype has been further developed and improved. At the time being a new version is rolled out and a training is performed with more than 16 million documents (German model: approximately 2.6 million DE and EP patent documents; English model: approximately 14 million US and EP patent documents). The new version will be evaluated and it is planned to integrate the cognitive search into the DEPATIS search application of the DPMA.

Further information on the electronic classification tool and the cognitive search can be found in the Annex.

Please do not hesitate to contact me for any questions you may have.

Best regards,

Gustav Schubert
Head

Section 4.3.2
Legal Affaires Patents and Utility Models

German Patent and Trade Mark Office
Zweibrückenstraße 12, 80331 München
Phone: +49 89 2195-4394
Fax: +49 89 2195-2065
E-Mail: Gustav.Schubert@dpma.de
Internet: <http://www.dpma.de>

Circular C.8862

Application of Artificial Intelligence (AI) at the German Patent and Trade Mark Office (DPMA)

In 2016 the DPMA started a development of a new Patent Search System. It is an in-house big data system developed in cooperation with our partner, interface projects GmbH.

There are two main AI application areas of the new Patent Search System:

1. Automated patent classification according to the International Patent Classification (IPC)

The underlying methodology used by the new automated patent classification tool is based on supervised machine learning. We use the fastText algorithm – a modification of the Word Embeddings algorithm with Continuous Bag of Words.

The system has been trained with publications of patent applications, granted patents and utility models. The supported languages are German and English. The German model has been trained with 2.6 million DE and EP patent documents, for training of the English model we used 3.6 million EP patent documents.

The tool provides classification depth up to the IPC sub-group level. The training collection is balanced across the IPC hierarchy. The more documents for a path of the IPC tree are available, the deeper access to the nodes of tree structure can be achieved.

The evaluation of the classifier has been performed using the quality measures “top prediction” and “three guesses”. With the newly trained model we measured three guesses of 88.9% and top prediction of 75%.

At each step of the classifier pipeline – data preparation, training and evaluation parameters can be configured and partial results can be viewed thus providing flexibility and transparency of the whole classification process. During the training IPC revision (concordance lists) is considered in order to improve the classification results.

The classifier is implemented as a web-service. It has been integrated into the digitization center of our electronic patent application system and in short time we will put it into production. The range of applications for the new classifier at the DPMA includes or is planned to include:

- Automated pre-classification of incoming patent applications. It will improve the distribution of patent applications among the examiners within our electronic patent application system.
- Interactive classification. The classification service will assist the patent examiners by providing three predictions each with a numerical confidence level, for text input.
- Re-classification or support for the introduction of new versions of the IPC.
- Maintenance of the patent literature. Examiners at the DPMA can validate or complement the assigned IPC classes or suggest new categories for patent documents within their examination area.
- Further applications like IPC classification of patent documents of foreign patent offices that do not classify according to the IPC, classification according to the German classification scheme DEKLA etc.

2. Cognitive Search

The Cognitive Search of the new Patent Search system currently provides two functionalities: prior art search and automatic finding of synonyms or words of similar context.

- Prior art search

The prior art search or pre-search function automatically generates a list of content-related patents for a given document or text input.

ITALY

The Italian Patents and Trademarks Office does not yet use artificial intelligence techniques in its internal applications.

We are however interested in the developments of this technology especially for research applications and automatic classification.

Best regards

Cristiano Di Carlo
IT coordinator
Italian Patents and Trademarks Office

JAPAN

Dear Sir or Madam,

I would like to submit Japan's result of follow-up survey on IPO administration. Please find the attached document.

If you have any question, please do not hesitate to contact us.

Best regards,
Mizuki Asano

Mizuki Asano (Ms.)
International Policy Division
Japan Patent Office
Ministry of Economy, Trade and Industry
TEL: +81 3 3503 9827
E-mail:asano-mizuki@jpo.go.jp

The JPO's Initiatives for the Utilization of AI

May 2019

1. Overview of the JPO's Initiatives

With a view to sophisticated and efficient business operations, the Japan Patent Office (JPO) began a feasibility study on how artificial intelligence (AI) technology can be applied to its business operations in the fiscal year 2016. And in April, 2017, the JPO formulated and published an action plan to suggest future directions for using AI technology, and conducted Proof of Concept (PoC) based on the action plan.

In the fiscal year 2018, the JPO reviewed the action plan based on the results of activities conducted in the fiscal year 2017, and revised the action plan. To be more specific, the JPO began preparing for introducing AI-based support tools into its two operations earlier than expected; (1) Patent classifications and (2) Prior art searches. At the same time, the JPO continued PoC on other three operations; (3) Response to inquiries, (4) Trademark image searches and (5) Classification of goods or services. Moreover, the JPO conducted new PoC on other two operations; (6) Patent image searches (applying image search technology in searching for patent drawings) and (7) Design image searches (Use of image search technology for two dimensional designs).

In the fiscal year 2019, the JPO will further promote the initiatives to utilize AI in its business practices.

2. Business operations in which possible uses of AI are being studied by the JPO

The JPO has been studying the possible uses of AI as tools capable of assisting its staffs in its respective business operations shown below. The targets and training data being studied by the JPO are as follows;

(1) Patent classifications

【Target】 Suggesting candidate patent classifications (F-terms) to be assigned and its grounds, based on the descriptions in the patent applications.

【Training data】 Text datasets of the patent applications assigned patent classifications

(2) Prior art searches

【Target】 Suggesting key words or patent classifications that need to be included in a search queries.

【Training data】 Text datasets of the patent documents examined by the JPO's examiners, and histories of search queries used in their examinations

(3) Response to inquiries (After call work support)

【Target】 Supporting the JPO's staffs to keep records of customer inquiries and their responses, by using speech recognition technology.

【Training data】 Datasets of manually transcribed conversations regarding customer inquiries over the phone

(4) Trademark image searches

【Target】 Displaying prior figurative trademarks which may be identical with or similar to the filed figurative trademark in descending order of visual similarity

【Training data】 Datasets of the search results of prior figurative trademarks

(5) Classifications of goods or services

【Target】 Suggesting candidate classifications (Similarity Group Codes) to be assigned to goods or services, based on the descriptions of goods or services in the trademark applications.

【Training data】 The reference materials being used in the trademark examinations at the JPO, such as the Examination Guidelines for Similar Goods and Services and the list of combinations of the goods/services described in the past trademark applications and their classes assigned in the examination.

(6) Patent image searches (Applying image search technology to search for patent drawings)

【Target】 Making it possible to search for patent drawings based on keywords or features of the images, by assigning keywords to the patent drawings or by extracting features from those images.

【Training data】 Datasets of the patent specifications and drawings

(7) Design image searches (Use of image search technology for two dimensional designs)

【Target】 Making it possible to assist prior design searches for two dimensional designs in finding prior identical or similar designs through uploading an image file of a target design.

【Training data】 Datasets of the existing search results in the area

3. Experiences that the JPO should share with other IP Offices, and other valuable information

- At the beginning of study for the possible uses of AI in its business operations, the JPO reviewed its entire business operations and select candidate business operations, for which AI technology can possibly be used.
- The JPO has conducted Proof of Concept (PoC) to test the possible uses of AI in the candidate business operations.
- In development of tools based on the results of PoC, the JPO uses agile software development approach to repeat the PDCA cycle in a short period of time. This enables the JPO respond to the rapid advancement AI technology so as to install state of the art AI-based tools.
- At the same time, in order to avoid the black box problem with AI, the JPO basically uses Open Source Software (OSS), and its in-house development team will be in charge of developing the AI-based tools.

- When introducing the in-house tools into its business operation, the JPO is considering of using the tools to support its staffs first. In doing so, the JPO's tasks that lie ahead are to identify how the tools can be best utilized by its staffs, and how the tools can be further improved based on their feedback.

4. Contact Person

(As of May 30, 2019)

- Yukio ONO (Mr.), Director, Multilateral Policy Office, International Policy Division, Japan Patent Office, <ono-yukio@jpo.go.jp>
- Masaki Ema (Mr.) Deputy Director, International Policy Division, Japan Patent Office, <ema-masaki@jpo.go.jp>

(End of text)

MADAGASCAR

Messieurs,

Suivant la lettre sus-référencée, vous nous invitez à participer à une enquête sur l'exploitation de l'AI au niveau de notre office.

Toutefois, nous n'arrivons pas à trouver le lien pour cette enquête .

Vous remerciant par avance pour votre coopération.

Salutations distinguées

Narisoa RABENJA

DIRECTEUR TECHNIQUE

Office Malgache de la Propriété Industrielle (OMAPI)

Lot VH 69 Volosarika Ambanidia - B.P. 8237 Antananarivo 101

Tél. bureau : +261 20 22 335 02 – 261 34 46 692 56

Portable : +261 32 04 279 33, +261 33 10 335 05

MEXICO

**Secretaría de la
Organización Mundial de la Propiedad Intelectual**

En atención a la circular 8862, se envían las respuestas del Instituto Mexicano de la Propiedad Industrial (IMPI) a la encuesta de seguimiento sobre la aplicación de la inteligencia artificial (IA) en la administración de las Oficinas Intelectual (OPI):

1. Indique si su Oficina utiliza soluciones que apliquen la IA y la inteligencia de los datos (por ejemplo, para la clasificación de archivos de solicitudes, la búsqueda de imágenes de marcas, la traducción automática, etcétera);
 - El IMPI utiliza la aplicación *WIPO Translate* para la traducción de información bibliográfica de patentes. Adicionalmente, se utiliza el producto informático denominado *Derwent Innovation*, cuyo proveedor es *Clarivate Analytics*, el cual es una base de datos que permite buscar por diversos campos. En dichas búsquedas no se aplica IA, pero si comprende la inteligencia de datos, lo cual permite elaborar la traducción de la información por máquina, de forma automática.
2. Describa los sistemas específicos de IA que se utilicen (por ejemplo, indique el nombre de un sistema disponible a escala comercial o de un sistema que se haya desarrollado a nivel interno, describa las funciones, señale los datos utilizados para el aprendizaje del sistema de IA, etcétera);
 - En lo que se refiere a sistemas desarrollados a nivel interno, actualmente el IMPI no cuenta con metodologías o arquitecturas en términos de IA.
3. Indique las experiencias y otra información útil que pueda intercambiarse con otras OPI (sobre la fiabilidad, la interfaz humana, las posibles repercusiones en el trabajo, las enseñanzas extraídas, etcétera);
 - El IMPI no cuenta con experiencia o información adicional en términos de IA que se pueda compartir con otras OPI.
4. Indique las personas que puedan consultarse en relación con este asunto (nombre, cargo y dirección de correo-e).
 - Toda consulta deberá dirigirse a la Dirección Divisional de Relaciones Internacionales del IMPI:
relaciones.internacionales@impi.gob.mx

Atentamente

NORWAY

Dear Madam/Sir,

In reply to circular C. 8862 relating to a follow-up survey on the application of Artificial Intelligence (AI) in the administration of Intellectual Property Offices (IPOs), the initial survey conducted in the first quarter of 2018 – the Norwegian Industrial Property Office submits the following update: "NIPO plans to upgrade to Accepto v11 by 2019, where AI tool is improved (neural network) with customer available search." to the existing text [NIPO uses a commercially available tool (Accepto for trademark version 10, by Sword-Group) for trademark image search. The search results (hit list) are prioritized based on AI-assisted search on image property coding The AI technology used is commercially available trained algorithms for coding and trained search algorithms for coding of images.]

The new text in full, would then read:

NIPO uses a commercially available tool (Accepto for trademark version 10, by Sword-Group) for trademark image search. The search results (hit list) are prioritized based on AI-assisted search on image property coding The AI technology used is commercially available trained algorithms for coding and trained search algorithms for coding of images. NIPO plans to upgrade to Accepto v11 by 2019, where AI tool is improved (neural network) with customer available search.

Best regards,

Jostein Sandvik
Director
Legal and international affairs
Norwegian Industrial Property Office
+47 22 38 74 09 mobile +47 450 00 541

PHILIPPINES

Dear Sirs/Mesdames,

This is to respectfully submit the updates of the Intellectual Property Office of the Philippines (IPOP HL) to the Index of AI Initiatives. Please find attached the said updates to replace the previous entries.

Truly yours,
Lizzie Cabrera

VINA LIZA RUTH C. CABRERA
Director IV
Management Information Service
Intellectual Property Office of the Philippines
Trunk Line: +632 238 6300 loc. 7100

**UPDATES TO THE INDEX OF AI INITIATIVES
INTELLECTUAL PROPERTY OF THE PHILIPPINES
AS OF 15 MAY 2019**

Country/ Territory	Institution	Business Application	Description
Philippines	Intellectual Property Office of the Philippines (IPOP HL)	Image Search (for trademark distinctiveness search and patent prior art search)	<p>The IPOP HL relies on the use of WIPO business solutions for IP administration. For search on existing trademarks, the IPOP HL trademark examiners and clients are provided with the hyperlink to WIPO's Global Brands Database, which was recently relaunched by WIPO as an AI-powered database, as well as the ASEAN TMView.</p> <p>For prior art search, IPOP HL patent examiners subscribe to commercially available patent search tools capable of big data technologies, such as Web of Science, STN, IEEE, and EpoqueNet, aside from the ASEAN DesignView, WIPO's PatentScope and WIPO CASE systems.</p>
Philippines	Intellectual Property Office of the Philippines (IPOP HL)	Business Intelligence	IPOP HL uses commercially available business intelligence software (namely Cognos and Tableau) for big data analytics to support management reporting requirements.

POLAND

Dear Sirs,

In response to the request of 25th March 2019 to participate in a survey regarding the application of artificial intelligence (AI) in the management of industrial property rights, I hereby inform that the Patent Office of the Republic of Poland does not use IT tools that have solutions in terms of AI and Big Data as well as it has not built up any considerable experience and expertise in the field. At present, the Patent Office of the Republic of Poland is preparing, through a technical dialogue, documentation for the purpose of implementing proceedings under the Polish government program GovTech for the solution within the scope of automatic classification of national applications of inventions and utility models based on AI.

Yours faithfully

Justyn Łojko
Director
IT Department

al. Niepodległości 188/192
00-950 Warsaw, P.O. box 203, Poland
tel.: (+48) 22 579 00 15 | fax: (+48) 22 579 00 01
e-mail: lojko@uprp.gov.pl | www.uprp.gov.pl

This message (including attachments) is a property of Polish Patent Office and may contain important and/or privileged information.
If you are not the intended recipient or have received this message by mistake, please notify the sender immediately and delete this message.
Any unauthorized copying, disclosure or distribution of the material in this message is prohibited.



Please consider the environment before printing this e-mail

REPUBLIC OF KOREA

Dear Sir/Madam,

First of all, we would like to express our gratitude to WIPO's efforts on Artificial Intelligence (AI) in the administration of Intellectual Property Offices.

In response to the Circular C. 8862, the Korean Intellectual Property Office (KIPO) has the following update:

[Current status and future activities regarding the use of AI in IP Administration by KIPO]

As detailed below, KIPO will initially apply AI into the fields of machine translation, image search and customer support service.

In order for the further application into other fields, research and substantiation is planned to be carried out.

1) In 2019, AI machine translation services will be applied to translation between Korean and English.

Afterwards, we plan to expand into translation from Chinese to Korean.

2) In the field of trademarks, a system to search similar images using AI is planned to be established in 2020.

Then, we plan to expand the image search system to the field of industrial design.

3) In the case of customer questions, we plan to establish a system where their questions can be analyzed

by AI to provide the best answer to the customer service agent.

For simple and frequently asked questions, an answer can be provided directly by AI.

This system will be implemented in phases beginning in 2020.

If you have any further inquiries regarding these issues, please do not hesitate to contact us.

Best regards,
Jumi Lee

Jumi Lee / 이주미

Deputy Director, Information & Customer Policy Division

Korean Intellectual Property Office (KIPO)

Contact : +82 42 481 5116, jumi.lee@korea.kr

RUSSIAN FEDERATION

Dear colleagues,

Since we approach to the deadline, please, find attached Rospatent's update on the application of AI in the administration of IPOs.

Thank you in advance for your kind collaboration.

In case of any questions, do not hesitate to contact me.

Best regards,

Vladislav MAMONTOV

International Cooperation Department

THE FEDERAL SERVICE FOR INTELLECTUAL PROPERTY

Rospatent

Tel.: +7(495)531-63-64

Fax: +7(499)531-66-56

**Rospatent's update within the framework of the second international survey
on AI for IPO administration**

1. *Do you have any relevant business solutions making use of AI and big data, e.g. classification of application files, image search of trademarks, machine translation;*

Rospatent currently uses in its practice two methods of AI solutions implemented in the patent search system for the examination of inventions and utility models (PatSearch):

- Machine translation (a special version of machine translation system developed by Russian company PROMT for the translation of patent documents);
- Patent documents similarity search system

2. *A description of specific AI systems in use as e.g. the name of commercially available system or an in-house development system, a description of functions, data used to train the AI system, etc.;*

The patent search system for the examination of inventions and utility models PatSearch was developed by Rospatent in cooperation with external developers. For machine translation of patent documents, the PatSearch system was featured with a module of the machine translation system PROMT. This system was specially trained using parallel cases of patent texts in Russian and English languages. In order to conduct a search for similar patent documents, a special subsystem using AI methods was developed. The solution was based primarily on the construction of a distributional thesaurus using the fasttext algorithm, featured with machine learning of an artificial neural network. The resulting distributional thesaurus is an array of semantic clusters of words and quasi-synonyms of these words. When carrying out an automatic search for "similar" documents, the request based on the text and some important bibliographic fields of the application for the invention undergoing examination is automatically generated, and then the semantic expansion of the request is made using the terms from the distributional thesaurus that are similar in semantic distance to words and word combinations from the text.

After conducting the search query for "similar" documents generated in this way, the obtained ranked list of search results is additionally re-arranged using the LambdaMart

algorithm with machine learning of decision trees. For machine learning, an array of decisions previously made by experts on the results of the examination is used.

When developing AI for examination, Rospatent drafted criteria for measuring the quality of search using AI. One of such criteria was a version of the known nDCG (k) criterion, determining the probability that the first k elements of the ranked list contain automatic search results for patent documents characterizing state of the art in the technical field to which the examined application belongs. These documents can be used when preparing a search report (field 56), as well as “refusal” references to documents (X - references) specified by experts in refusal decisions to grant a patent by novelty or inventive step.

3. *Experience and other useful information to share with other (IPO reliability. Human interface, any impact on the work, lessons learned, etc.);*

The development of the quality measuring criterion for the similarity search that takes into account the features of the invention examination process was of key importance for the success of the work on the search for similar documents.

4. *Contact person(s) for further consultation on this matter (name, title, and e-mail address).*

Dmiry ZOLKIN – Deputy Head of the division for the design of information search systems,
db_dept@rupto.ru

SINGAPORE

Dear Secretariat of WIPO

Our sincere apologies for the delay in preparing this response.

For the follow-up AI survey outlined in circular 8862, we would like to update our previous response submitted in 2018 and limit it to the following 3 updated entries only:

Singapore	Intellectual Property Office of Singapore (IPOS)	Patent classification, Patent prior art search	IPOS has partnered with AI Singapore, a national AI programme launched by the Singapore National Research Foundation, to develop an AI-driven solution for patent search and examination. By utilising natural language processing and machine learning to analyse patent documents, the solution would classify applications by assigning IPC codes and generate appropriate search strings to partially automate prior art search.
Singapore	Intellectual Property Office of Singapore (IPOS)	Helpdesk services, Examination (trademark)	IPOS has partnered with A*STAR, a local research institution, to develop a trademarks distinctiveness checking tool. The project would utilize machine learning on our database of past decisions to train an AI model to assess the distinctiveness of word marks in the context of the goods or services claimed. This would provide applicants with a preliminary assessment of the distinctiveness of word marks and dissuade applicants from filing clearly non-distinctive, thereby reducing the wastage of time and resources by both the applicant and IPOS.
Singapore	Intellectual Property Office of Singapore (IPOS)	Image search (trademark)	IPOS has explored various image search solutions utilizing object detection and objection recognition technologies on the market. This has been conducted over several rounds of proof-of-concept testing in order to assess the solutions' effectiveness in improving the accuracy and relevancy of search reports. IPOS has procured a suitable solution and is in the midst of deploying the system for launch in the second half of 2019. An image-based search system is more user-friendly for applicants and the increased accuracy and relevancy of the search reports would increase IPOS' examination efficiency and quality.

Thank you.

Regards

Andrew AU

Trade Mark Examiner

Registry of Trade Marks

D: +65 6330 8661 **F:** +65 6339 0252 **W:** www.ipos.gov.sg

A: 51 Bras Basah Road, #01-01 Manulife Centre, Singapore 189554

Ideas Today. Assets Tomorrow.

CONFIDENTIALITY CAUTION: This message is intended only for the use of the party to whom it is addressed and may contain information that is privileged and confidential. You should not use, copy or disseminate it for any purpose, or otherwise disclose its contents to any other person. Thank you

SPAIN

Danto respuesta a la circular C.8862 (anexa), se adjunta documento con aportación de la Oficina Española de Patentes y Marcas.

Conforme solicitan en la misma, se facilitan a continuación datos de las personas de contacto a efecto de consultas relativas a este asunto:

- Ana Redondo Macua
Directora de la División de Tecnologías de la Información (DTI)
Ana.Arredondo@oepm.es
- Begoña Martínez de Miguel
Coordinadora del área de Sistemas y Desarrollo
DTI
begona.martinez@oepm.es

Un cordial saludo,

Secretaría
Departamento de Coordinación Jurídica y
Relaciones Internacionales
OFICINA ESPAÑOLA DE PATENTES Y
MARCAS, O.A.

Paseo de la Castellana, 75
28071 Madrid (ESPAÑA)
☎ (+ 34) 91 349 68 01 / 00
Fax: (+ 34) 91 572 27 41
✉ departamento.coord-inter@oepm.es
🌐 www.oepm.es

TABLA DE ACTIVIDADES EN MATERIA DE IA Y AUTOMATIZACIÓN

País Región	Nombre de la institución	Aplicación funcional	Descripción
España	Oficina Española de Patentes y Marcas (OEPM)	Divulgación y formación	Elaboración de un informe de título <i>Inteligencia Artificial y Propiedad Industrial</i> , cuyo objetivo fundamental es divulgar nociones relacionadas con la patentabilidad de invenciones relacionadas con IA.

España	Oficina Española de Patentes y Marcas (OEPM)	Búsqueda del estado de la técnica en el ámbito de las patentes	En 2019 la OEPM ha realizado un trabajo de análisis y evaluación de diferentes herramientas de Inteligencia Artificial aplicadas a Propiedad Industrial disponibles en el mercado y/o empleadas por otras Oficinas de PI, con objeto de encontrar una herramienta eficaz capaz de hacer pre-búsquedas de patentes que simplifiquen el trabajo del examinador.
España	Oficina Española de Patentes y Marcas (OEPM)	Búsqueda del estado de la técnica en el ámbito de las patentes	En 2019 la OEPM ha trabajado en la implementación de una preparación en Epoque, que proporcione al examinador una pre-búsqueda del estado de la técnica.
España	Oficina Española de Patentes y Marcas (OEPM)	Digitalización y automatización de procesos	<p>En 2019 la OEPM ha llevado a cabo una labor de descubrimiento de operativas susceptibles de robotización (RPA). Hasta el momento se han detectado unos 10 procesos aptos de robotizar, y en el marco de un proyecto piloto se comenzará a trabajar en dos áreas diferentes:</p> <ul style="list-style-type: none"> - Automatización de la generación de los ficheros de pagos correctos e incorrectos, para su posterior carga en la aplicación de tramitación de invenciones y de Contabilidad. - Automatización del proceso de generación y envío del paquete de ficheros que contiene el ejemplar original de las solicitudes internacionales PCT a OMPI. <p>En ambas áreas actualmente se precisa de intervención manual. En una segunda fase se abordarán la automatización de otros procesos relevantes, como por ejemplo el envío del documento de prioridad a OMPI.</p>
España	Oficina Española de Patentes y Marcas (OEPM)	Clasificación de marcas (productos y servicios)	En 2019 la OEPM está llevando a cabo una prueba de concepto basada en el empleo de algoritmos de inteligencia artificial, para intentar agilizar la revisión de la clasificación de Niza proporcionada por el solicitante.
España	Oficina Española de Patentes y Marcas (OEPM)	Examen (marca, patente)	En 2019 la OEPM está llevando a cabo una prueba de concepto basada en el empleo de algoritmos de inteligencia artificial, para intentar agilizar la clasificación de elementos figurativos, en relación con la Clasificación de Viena y así, identificar anterioridades a efectos de comunicación a titulares prioritarios.

España	Oficina Española de Patentes y Marcas (OEPM)	Análisis de Datos	En 2018 la OEPM ha trabajado en el desarrollo de dos Datamart para facilitar la explotación de los datos de Invenciones y de Contabilidad. Dichos Datamart posibilitarán la generación de numerosos informes operativos, así como la posible creación de cuadros de mando de gestión. El objetivo a futuro es seguir trabajando en el desarrollo de los correspondientes Datamart para otros departamentos.
--------	--	-------------------	--

CONTACTOS :

Ana Redondo Macua – Ana.Arredondo@oepm.es

Begoña Martínez de Miguel – begona.martinez@oepm.es

CORREO ELECTRÓNICO :
informacion@oepm.es

Pº DE LA CASTELLANA, 75
28071 MADRID
TEL. 902 157 530

Dear Colleagues,

Please find enclosed the EUIPO contribution to your survey on Artificial Intelligence disseminated at the end of March.

We apologize for the late answer, caused by an internal misunderstanding, and we hope that you can still take into consideration our response.

Kind regards,

Valerio Papajorgji

International Cooperation Service
International Cooperation and Legal Affairs Department
European Union Intellectual Property Office
Tel: +34 965 13 7588 - Mobile:+34 630 373 069
valerio.papajorgji@euipo.europa.eu

www.euipo.europa.eu

Twitter: @EU_IPO



EUIPO contribution to WIPO survey on Artificial Intelligence (2019)

Please find hereinafter the contribution by the European Union Intellectual Property Office with regard to the survey on the application of Artificial Intelligence (AI) in the administration of Intellectual Property Offices (IPOs).

- 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.)**

Within the framework of the current Strategic Plan the Office analysed which areas would benefit the most applying AI tools/technologies. As a result EUIPO is adopting and considering AI in the following scenarios:

- Public trademark/Design searches: EUIPO is using a third party Image search solution available in our public search eSearch Plus tool. This solution currently allows to identify similarity in signs through a third party image search component, which returns the similar marks based on the input image.
- Trademark applications: EUIPO is working on a Proof of Concept to create a classification model for Goods and Services (G&S) which could provide acceptability of a given G&S term. In Similarity of Goods and Services, EUIPO use AI models to read Office opposition

decisions in different European languages to extract G&S pairs information, which enables our examiners to make use of previously assessed pairs without having to read the long letters manually.

- **Trademark examination:** EUIPO uses some internal tools powered with Algebraic Algorithms that group trademarks to be evaluated by the same examiner. This improves the efficiency and helps harmonizing the decision making processes.
 - **Letters analysis:** EUIPO is working on extracting relevant information from letters and make decisions based on this information. EUIPO has applied this technique to Absolute Grounds and Relative Grounds deficiency and decisions letters. Also to analyse the deficiency rate and grounds in Design applications.
 - **Machine translation:** EUIPO uses machine translation for Case Law documents. The Office provides automatic translations in the website for EUIPO decisions. This allows the user to grasp the main idea of the content of the decision.
- 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.)**

See previous answer. EUIPO provides these online Tools which use AI:

- **EUIPO eSearch Case Law tool:** uses eTranslation engine for providing automatic translation of decisions. This is available publicly in the following URL <https://euipo.europa.eu/eSearchCLW>.
 - **EUIPO eSearch plus tool:** uses TMVision (CompuMark) to support image search on TradeMarks and Designs. This is available publicly in the following URL: <https://euipo.europa.eu/eSearch/>
- c. **Experience and other useful information to share with other IPOs (reliability, human interface, any impact on the work, lessons learned, etc.)**

Most of the solutions listed in (a) are used by internal examiners. Image search and Machine Translation is also available in EUIPO's Website. Office policy is to use AI as a tool to help its staff to take better decisions and perform the work more efficiently.

- d. **Contact person(s) for further consultation on this matter (name, title, and email address)**

Miguel Ortega: miguel.ortega@euipo.europa.eu

Valerio Papajorgji: valerio.papajorgji@euipo.europa.eu

UNITED KINGDOM

Response from the United Kingdom Intellectual Property Office (UK IPO)

To whom it may concern,

Please find attached the UK IPO response to the survey on the application of artificial intelligence to the administration of IPOs.

Many thanks and kind regards

Marc Wild

Marc Wild | Senior Policy Advisor, Industrial Policy Team, Innovation Directorate
Intellectual Property Office | Concept House | Cardiff Road | Newport | South Wales | NP10 8QQ
Tel: +44 (0)1633 81 4622 | Email: Marc.Wild@ipo.gov.uk

www.gov.uk/ipo

IPO | Making life better through IP

Background

The UK IPO is undertaking a major portfolio of work to transform our digital systems and we are planning to make more use of AI in the future. Information concerning specific applications of AI are outlined below.

Automatic Patent Classification

UK IPO is developing a proof of concept to assist in the process of allocating patent applications to the relevant patent examiners. If successful, similar techniques are expected to be employed to investigate development of a semi-automated patent classification tool. There is however no fixed timeframe for this project.

AI-assisted Patent Prior Art Search

UK IPO is working alongside a local university to undertake a feasibility study looking to develop a proof-of-concept, which demonstrates the technical complexities and benefits of AI-assisted patent prior art searching. This research will help to answer a number of technological challenges currently facing the IP community, including the suitability of AI for patent searching given the technical nature of patent specifications and the terminology used given the legal nature of patent documents. The intended approach is designed to supplement, not substitute human expertise and judgment. This human-in-the-loop approach aims to maximise the machine performance by combining AI and human intervention, with the AI used to assist patent examiners in navigating through large volumes of patent data by suggesting the most plausible search terms and categorisation of patents into easily interpretable topics. This project began in January 2019 and aims to evaluate the viability of different AI technologies for patent prior art searching, test different approaches to identify the most effective algorithms, and undertake a full testing phase to assess its effectiveness. The project is scheduled to be completed in October 2019.

AI Trade Mark Image Search

The UK IPO is working towards a proof of concept to look at the use of AI for text, image, sound and motion marks. The initial project started in February 2019 and is scheduled to be completed in June 2019 and is primarily focused around text and image search with a stretch goal to work on sound marks. The project is on track with some promising results on text and image search during early stage development. The development is being done primarily utilising open source software and is being run on compute within the Azure cloud and is portable to other clouds and on-premises. The pilot will produce a simple web site that allows for searches to be performed using the AI algorithm and could be exposed to applicants and/or examiners.

Data analysis for economic research

UK IPO is utilising data science techniques, including machine learning, to help answer IP research questions by exploring how algorithms can be developed to identify emerging terminology and emerging technologies. A Python app has been developed to extract popular or emergent n-grams/terms (words or short phrases) from free text, and a full evaluation of this tool is now underway to evaluate its usefulness for wider economic research.

UNITED STATES OF AMERICA

(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.)

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. AI is basically defined as cognitive assistance using feedback from human users where the AI is capable machine learning (deep/neural) to provide the most useful and relevant information to determine patentability by an examiner during prosecution.

The program will enable detailed textual analysis of patent application data and related office actions, allowing data scientists to analyze data from patent application through post-grant. This analytics platform with textual information from patent applications and subsequent Office actions. With this data, data scientists will be able to conduct analyses on the entire patent prosecution history – from initial filing all the way through post-grant. Other notable work has focused on improving the USPTO's application programming interfaces (APIs) to provide the public with better access to USPTO data.

In particular, Patent Operations teams have requested an Office Action API listing summation data of each office action including the rejection type by claim and reference(s) used. This will enable Patent Operations to investigate ways to complete Examiner Time Analysis and citation usage, in particular, to harmonize US office actions to PCT using the citation portion of the API with enriched citations.

Another example, the program used machine learning and modeling of the Master Review Form using data science techniques to provide new insights and prototype dashboards as requested.

In other areas such as searching, the USPTO is delivering a proof of concept, Sigma, which uses machine learning/AI algorithms to search whole documents against a corpus of documents. For this version of Sigma, patent applications were searched against granted patents and pre-grant publications (US only).

This program also includes improvements for Trademarks Operations in the following areas: 1) developing a quality review smart form with analytics; 2) ingesting office actions on the BDR with advanced analytics including usage and descriptive statistics; and 3) determining the efficacy of deep machine learning for image searching for Trademarks.

We are not currently using AI technology on translations; however, deep machine learning Quality Chat Bots are being researched to provide ready access to “concept questioning” (instead of keyword) to the USPTO Manual Patent of Examination of Procedures (MPEP) and other claim analytics and classification analytics using algorithms and claim language to better understand trending of claim language and classification.

One Trademark AI system in use: *Trademark Quality Review (TQR)*, described below in (b). No other Trademark systems are currently “in use” – everything is in development. Some are closer than others; the one with the greatest revolutionary potential (image searching) is the furthest from delivery.

(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.)

The program is in-house development using open source technology (Java and Python) for which the USPTO customizes per application per system. For example the big data technology platform comprises of NIFI, Hive, Spark, Elastic Search and Hadoop Distributed File System (HDFS) Storage. The USPTO does not endorse any particular technology but instead has decided to use what best meets our needs and on funding.

The *Trademark Quality Review (TQR)* system is designed to search for a statistically significant group of randomly selected examination documents (registrations, rejections, requests for additional information, etc.) to determine timeliness and quality of the work being accomplished by Examining Attorneys.

(c) Experience and other useful information to share with other IPOs (reliability, human interface, any impact on the work, lessons learned, etc.)

The strategy of building by “use cases” to validate the value of data science with patent and trademark prosecution with feedback mechanisms by the users (examiners and quality experts) to train the models is very critical. Also, the strategy of cognitive assistance to the examine based on using test groups end users and using open source (to custom code from known building blocks) to build from within organization to validate the results. Knowledge management is critical to ensure the quality of the results and AI that is consist and in constant communication to the executives to drive meaning, measurable metrics based decision making from data that improves performance management of the agency.

Significant work is being done in *Design Code Recommender* analysis and *Refiles of Previously Rejected Marks* efforts. Potential near-term (subject to on-the-horizon testing) success with *Classification of Goods and Services Identification* program. Nascent work in *Image Search* program development. We'd be happy to discuss the lessons learned for any and all of them with SMEs from other offices. The work has far-reaching potential impacts in a number of different ways. As we've seen from work with offices in Tokyo, Geneva, Barcelona, Seoul, etc., the work touches the IPOs in different ways depending on the focus of the effort. Some are more Patent-centric, others more Trademark-centric.

(d) Contact person(s) for further consultation on this matter (name, title, and e-mail address).

Thomas A. Beach, Chief Data Strategist & Portfolio Manager, Thomas.Beach@uspto.gov
Nelson Yang, Acting Director of International Patent Business Solutions; Nelson.Yang@uspto.gov

Greg Dodson, Deputy Commissioner for Trademark Administration; greg.dodson@uspto.gov

Glen Brown, Trademark Information Technology Liaison and Office Director Trademark IT Planning and Programs; glen.brown@uspto.gov

Chris Doninger, Trademark Managing Attorney and Trademark AI/ML Subject Matter Expert; chris.doninger@uspto.gov

VIETNAM

Dear Madam/Sir,

I would like to refer to the Circular C.8862 of WIPO dated March 25, 2019 inviting us to provide information relating on AI application for administration at our Office.

In this regard, we would like to inform that at this moment, the Intellectual Property Office of Viet Nam (IP Viet Nam) has no any AI application at our Office. Further update on this issue will be informed to WIPO in due course. Additionally, we hope that in the coming time WIPO could consider assisting IP Viet Nam in applying AI to develop the WIPO IPAS system at our Office.

Thank you for your cooperation.

With best regards,
Khánh.

Hoàng Duy Khánh (Mr.)
International Cooperation Division
Intellectual Property Office of Vietnam (IP Viet Nam)
384-386 Nguyen Trai St., Thanh Xuan Dist., Hanoi, Vietnam
Mobile : +84 986 857 399
Email : hoangduykhanh@noip.gov.vn

[End of document]