AUSTRALIA WRITTEN STATEMENT

Item 7 (a): Quality of patents, including opposition systems: Sharing session on the use of artificial intelligence for examination of patent applications

Australia is pleased to share a brief update on its Patent Modernisation initiatives, using artificial intelligence for examination of patent applications. In recent years, we have been modernising our patent systems. This has included reducing the number of legacy systems, refining our technical offerings to customers and improving the services used by examiners.

The following AI initiatives form part of this broader program of work:

- *Patent Auto Classification (PAC)*

  Our Patent Auto Classification service has been in production for over 2 years. This service automatically classifies patent applications according to the International Patent Classification (IPC) and allocates them to the correct examination sections across hundreds of technology groups. PAC uses natural language processing (NLP) to analyse the contents of each patent application and a machine learning model to predict the relevant technology groups and the appropriate patent examination section. This service has successfully replaced the manual preliminary sorting process that was previously performed by patent examiners. We are also currently investigating the feasibility of full Cooperative Patent Classification (CPC) classification using similar NLP and machine learning approaches. However, there are no immediate plans for this to fully replace the CPC classification process performed by patent examiners.

- *Automated Preliminary Search Tool*

  Another tool that creates time efficiencies for our patent examiners is the Automated Preliminary Search Tool. This tool carries out an automated search of published patent applications, as well as non-public applications from IP Australia's internal databases, by using automatically generated search queries containing the names of applicants and inventors, and IPC and CPC symbols.

  - Potential citations are presented to examiners and ordered by relevance as determined by a machine learning (ML) algorithm.

  - Examiners can manually modify and refine the automatically generated search queries.

  This tool ensures consistency across all preliminary searches, improving quality.

- *Outcome-Based Directions*

  The directions process is where patent applicants are directed to request examination. We are using an ML model to improve this process, by prioritising directions based on an applicant's circumstances. The model directs applicants to request examination when the applicant's IP strategy is more developed, when they are more interested and ready to enter the examination process. This helps patent applicants navigate the examination process more efficiently and not have to request examination before they are ready.

This approach is an improvement to the former process where applicants were directed to request an examination of their patent application solely on chronological order.

- *(Patent) Family Member Analyser (FMA) Tool*

  The FMA tool retrieves published family member information for a patent application and presents it in a way that allows for an easy, visual comparison of the claim sets.

  - A machine learning model analyses the claims and calculates how closely they are related.

  - This allows examiners to identify closely related family members quickly and accurately, to retrieve relevant Foreign Examination Reports (FERs).

  The previous process for finding and retrieving relevant FERs was time consuming and susceptible to human error.

- *Foreign Examination Report (FER) Feature Analysis*

  We have also developed the FER Feature Analysis functionality as an extension to the FMA tool. This functionality uses NLP to identify and extract relevant objection and citation information from foreign examination reports on related applications identified by the FMA tool. The current functionality includes analysis of AU, PCT, EP and US family members, with further jurisdictions to be added in the future. The longer-term vision for the tool includes the ability to indicate to an examiner whether an objection raised in a FER should be raised under the Australian law.

- *Computerised decision making*

  We have an Automated Decision-Making Governance Framework which establishes the structures and controls for the automation of decisions in IP rights administration. We are currently undertaking a routine review of this Framework. The legislation provides that the actions by the computer program are taken to be the actions of the Commissioner. Importantly, the Commissioner's powers are not being delegated to the computer program and the Commissioner has the power to review and undo a decision made by the computer.

Summary

Australia is keen to harness the benefits of AI and automation in order to achieve efficiency gains in all aspects of examination and administration, and so improve outcomes for our staff and our customers.