



Artificial Intelligence tools *powered by WIPO*

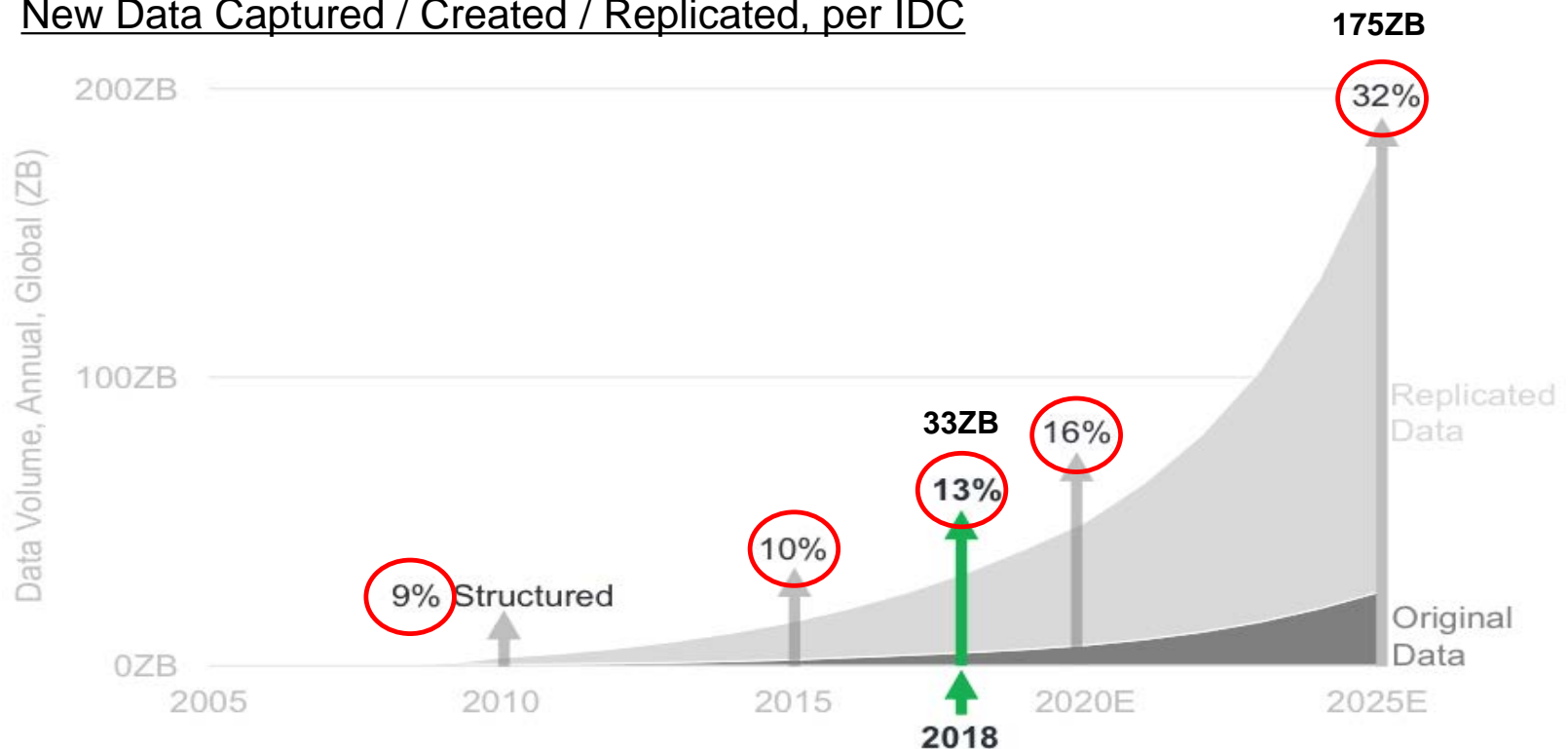
Patent Information Fair & Conference, Tokyo, Japan
Wednesday, November 6, 2019

Today's Agenda

1. Why is Artificial Intelligence (AI) so important?
2. How WIPO works with Artificial Intelligence (AI)
3. Use of AI within WIPO's patent related services
4. Other active AI projects at WIPO
5. PATENTSCOPE developments and stats

Accelerated increase in global data, but... what's valuable?

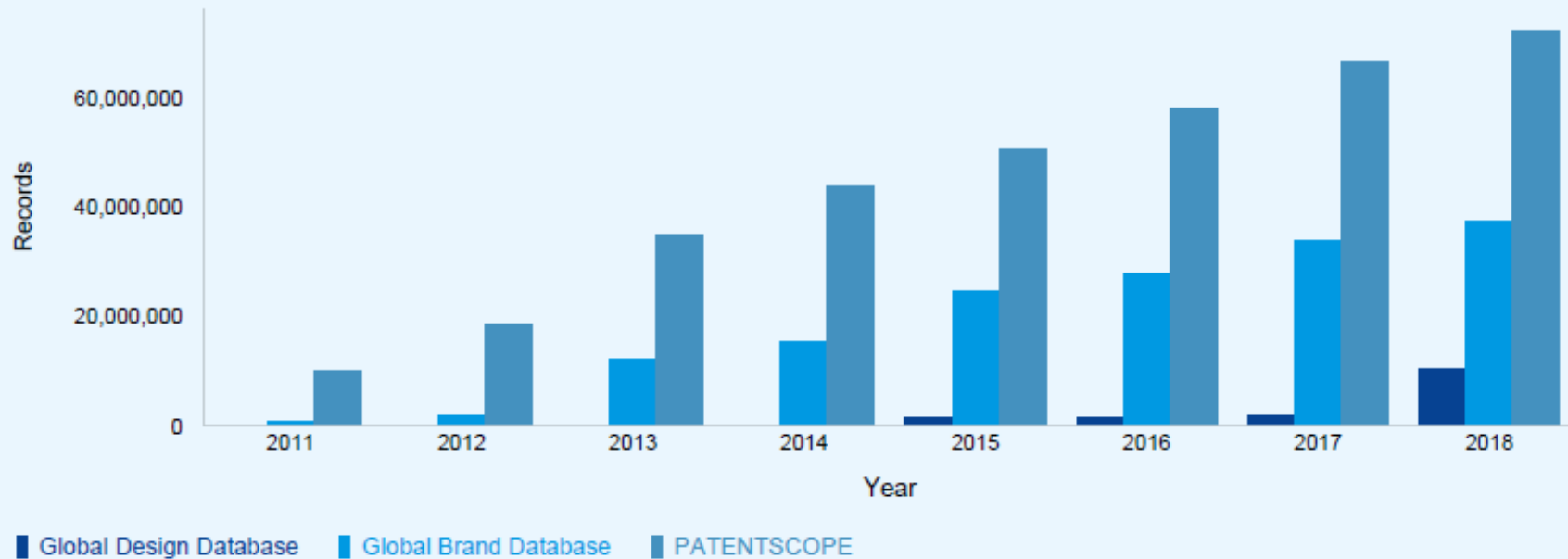
New Data Captured / Created / Replicated, per IDC



Note: 1 petabyte = 1MM gigabytes, 1 zettabyte = 1MM petabytes of new data created or captured each year. The grey area in the graph represents data generated, not stored.
Source: Mary Meeker's "Internet Trends, 2019" report. Figures sourced from IDC's "Digitization of the World From the Edge to Core" White paper, developed in collaboration with Seagate (November 2018).

Consistent increase in **valuable** data at WIPO

Evolution of records contained in the global databases, 2011–2018



Source: Report of the Director General to the 2019 WIPO Assemblies

WIPO uses AI to help process data, but also to derive VALUE from the data

- As data generated and collected by WIPO increases, so must innovation in treating and making sense of the data – AI plays an important role at WIPO
- WIPO is focused on Narrow AI, so Machine Learning and Neural Networks
- WIPO has and continues to develop its own IP management services and tools using Narrow AI technologies, creating best-in-class applications of AI for the international IP system

AI @WIPO is...Deep supervised **machine learning**

■ Data is the key...and successful AI tools and services need:

1. Quantity
2. Quality
3. Representativeness

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- Lots of data (with human translation/transcription/classification)

2. Quality

- Quality at source.....“garbage in” = “garbage out”
- Automatic segmenting / filtering

3. Representativeness

- In-domain..... “fit-for-purpose”
- Recent data
- Unbiased data

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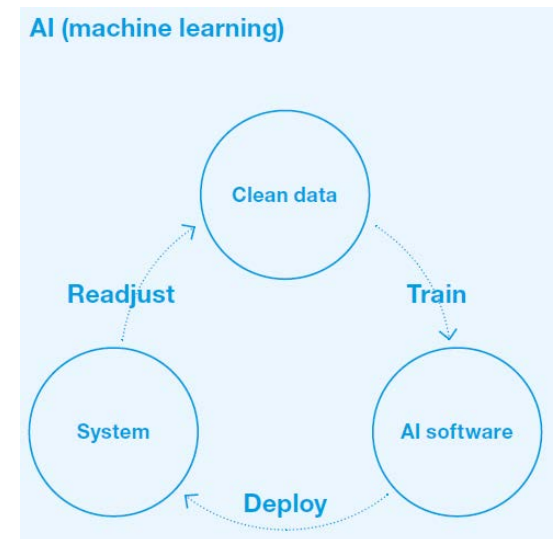
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... and a good Neural Network infrastructure



AI is used to improve patent administration at WIPO

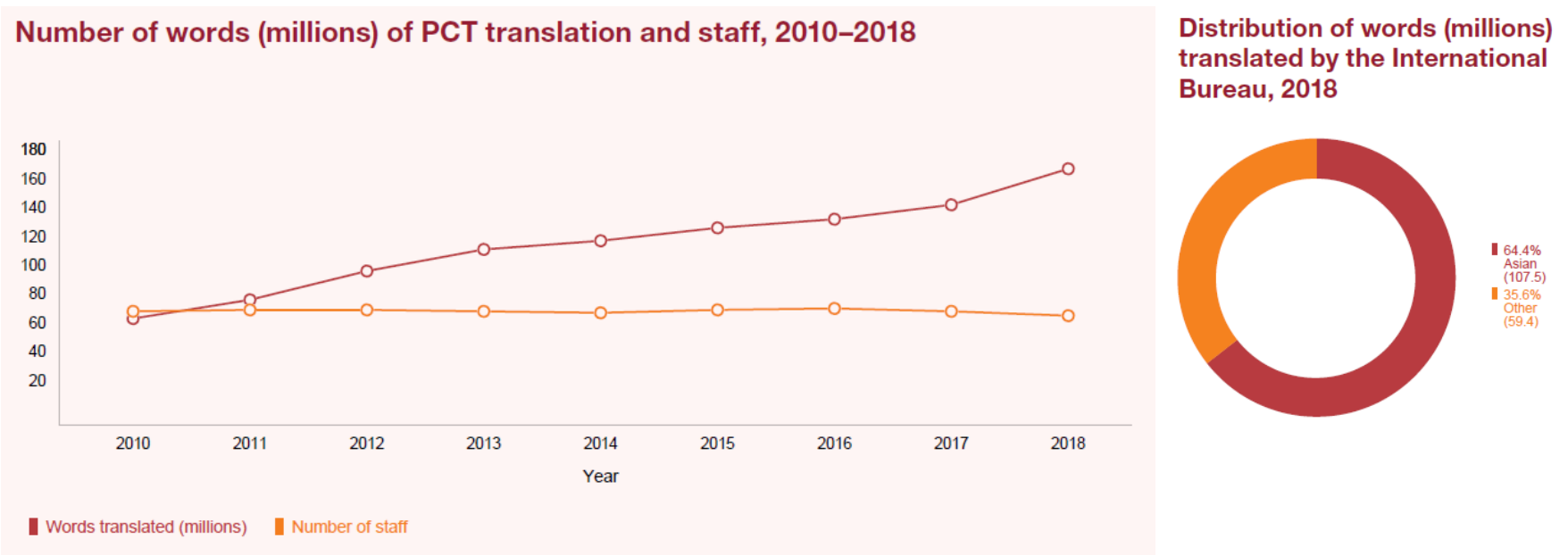
- PCT

- PATENTSCOPE

- International Patent Classification (IPC)

Helping manage increases in PCT translations

■ WIPO AI tools* for PCT has provided welcome assistance to translators

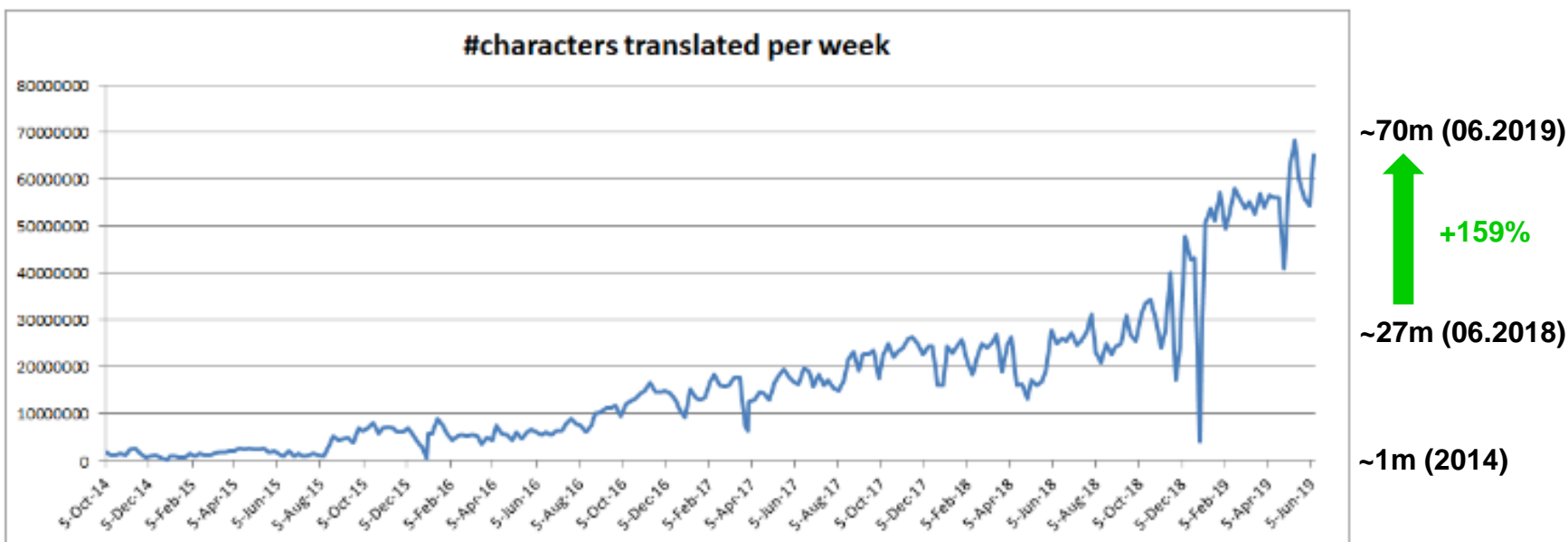


*WIPO's Statistical Machine Translation tool (Tapta) launched in 2011. WIPO Translate (Neutral Machine Translation tool) launched in 2016.

Source: Report of the Director General to the 2019 WIPO Assemblies

Enhancing patent search through PATENTSCOPE

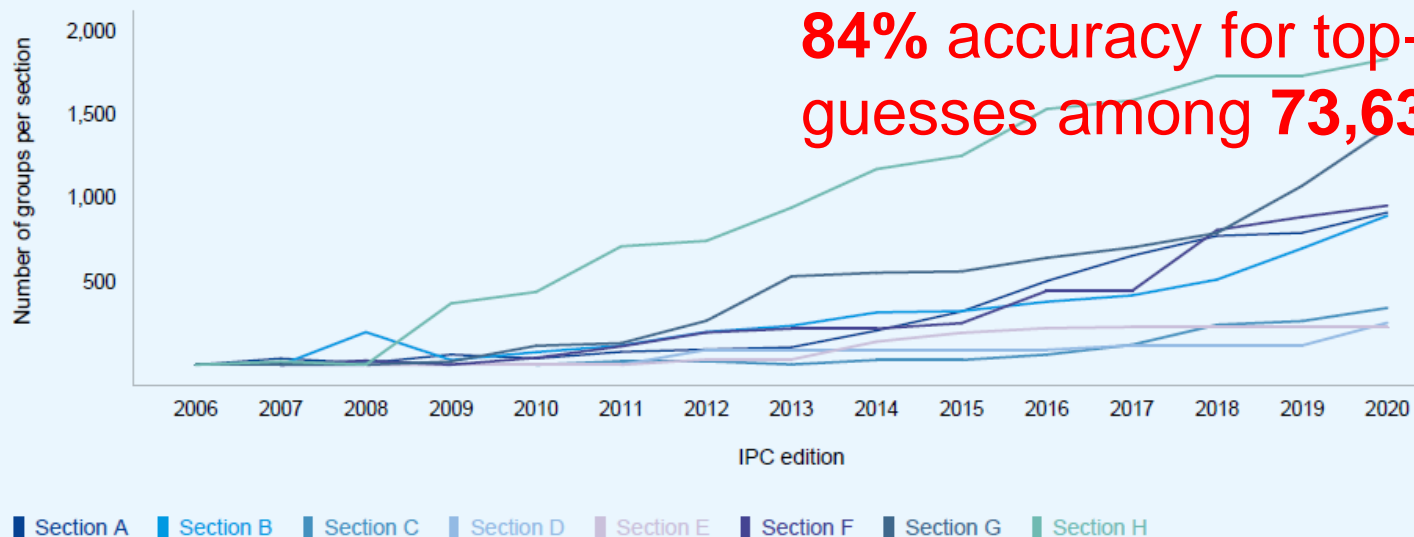
- WIPO Translate works tirelessly to render foreign patents understandable



- Daily volumes reach 1.6m words translated / day across 18 language pairs
- 65 % Chinese, Japanese and Korean

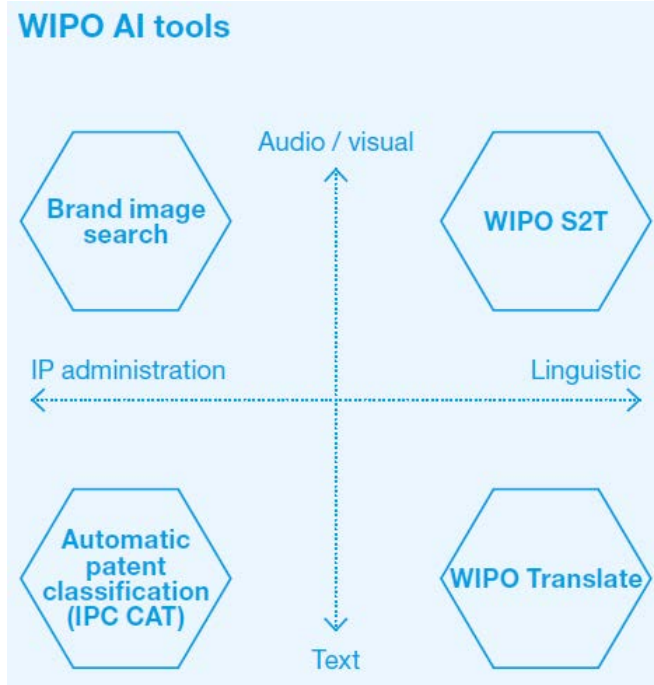
Automatically assigning IPC classes to patents

Number of IPC groups, 2006–2020

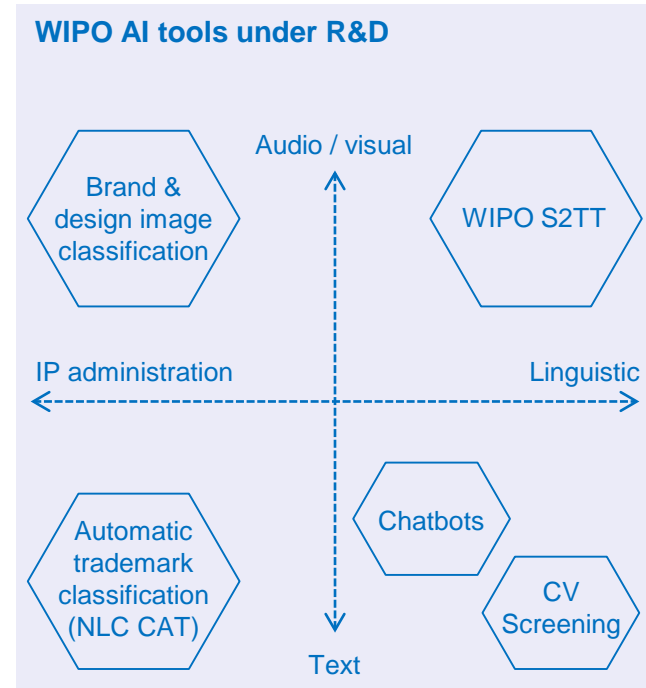


- IPCCAT-neural is WIPO's AI-based automated text classification tool;
- Automatic IPC classification at subgroup level;
- Text can be submitted in 10 languages, including Japanese and Chinese

Active AI projects at WIPO



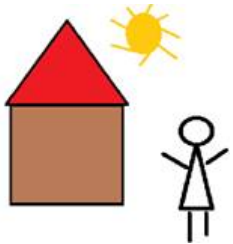
- Image similarity search for TMs
- Speech-to-Text (S2T)
- IPC text classes



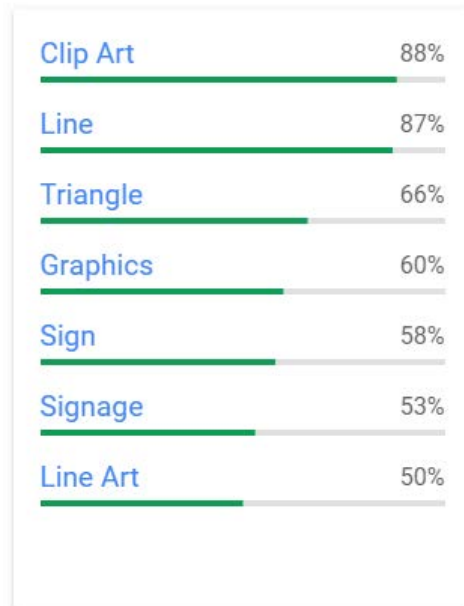
- Vienna visual classes & other
- Speech-to-translated-Text (S2TT)
- Nice classes

How does our AI compare to Industry standard?

- E.g., image classification



Google Vision AI “Labels”



WIPO’s image classification tool

| | | |
|----------|--|--------|
| 07.01.04 | Detached house | 12.891 |
| 07.01.06 | Other stylized houses | 11.684 |
| 01.05.04 | Suns with rays | 11.08 |
| 04.07.03 | Geometric figures or combinations of geometric figures representing a person | 10.558 |
| 01.05.25 | Other representations of the sun | 10.538 |
| 02.05.02 | Silhouettes or profiles of children | 9.63 |

Expanding our AI footprint to assist IPOs and users of IP systems globally

- WIPO's advances and innovations in AI are valuable externally
 - IP industry, and Science and Tech community;
 - Member states and national/regional IP Offices;
 - UN-family organizations, and other international institutions.
- WIPO is mindful of the growing global digital divide and thus committed to providing inclusive access to WIPO AI tools
- Currently following a demand-driven approach: License our AI tech to those who show interest
- WIPO continues to drive inter-IPO cooperation on AI by;
 - Organizing conferences and workshops, and running surveys;
 - Championing data and AI-tool sharing through collaboration.

PATENTSCOPE developments and stats

- The national collection of India added;
- Usability, security and training has improved, notably with respect to the user interface – new GUI with new features such as the side-by-side view;
- Chemical compound search was extended – now supports substructures;
- PCT search reports are now 100% digital with integrated WIPO Translate;
- Training and software was provided to 19 offices in 2018 to assist them in creating high-quality full text for the publication of their patent applications and grants



THANK YOU

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