



**IPR Conference 2022
ECCK-KIPO**

Advanced Ways to Protect IP by Using New Technologies such as AI and Blockchain

**EU Delegation to the Republic of Korea
22 of September 2022**

Jorg Weberndorfer, Minister Counsellor

Introduction: definitions

- ***Artificial Intelligence:*** the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. [Oxford dictionary]
- ***Blockchain:*** a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. An asset can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding). [IBM]

Introduction: “European” IP rights

- EU Trade Marks (**EUIPO**)
- EU Designs (EUIPO)
- EU Geographical Indications (EC; EUIPO)
- Community Plant Varieties (**CPVO**)
- European patent protection (registration at **EPO**)
- Unitary patent (future; EPO)
- *Copyrights?*
- *Trade secrets?*

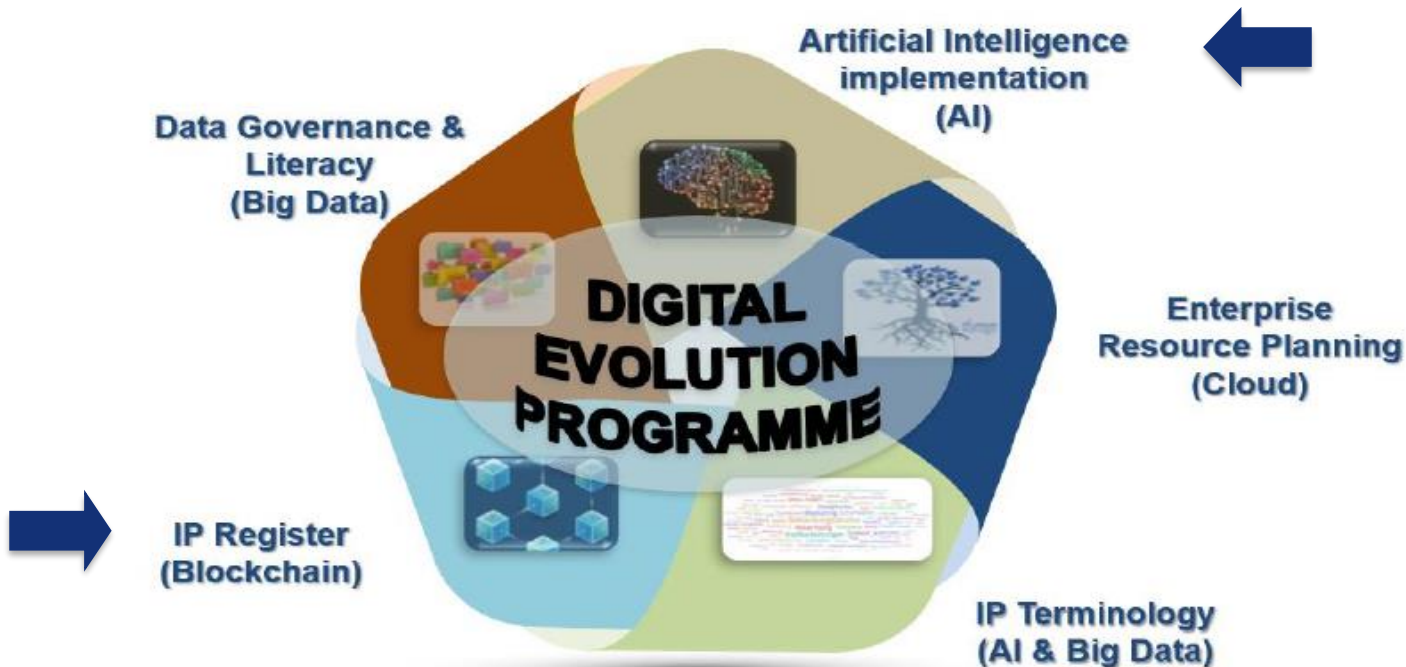


AI and Blockchain at EUIPO (EU)

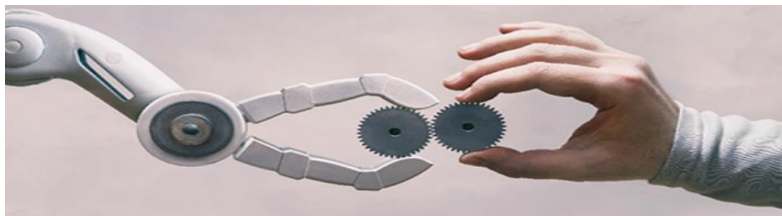


- **Intellectual Property innovation ranking 2021**, published by World Trademark Review (WTR)
- **The EUIPO is ranked first, together with KIPO**, followed by Singapore, United Kingdom and Mexico.

- **EUIPO's Digital Evolution programme**
- Embraces new technologies to shape and improve its services



EUIPO - AI



EUIPO is conducting its operations with the aid of the **latest AI-based technologies** and improved its services in particular via:

- **Chatbot** for easy filing users
- AI-empowered **image searches**
- Machine **translations**
- AI-based **comparisons of goods and services**

EUIPO - AI



- EUIPO has launched its first virtual assistant in EasyFiling: **the EUIPO Chatbot**
- It is available 24/7 and provides general information on basic questions and doubts that users have when filing online
- If users are not satisfied with the Chatbot's response, they can choose to chat with a person between 8.30h and 18.30h
- An EUIPO working group monitors the Chatbot on a weekly basis to improve its performance

EUIPO - AI

eSearch plus

The EUIPO's database *access*



Visual search

Proper trade mark clearance is the key to a successful application. With eSearch plus, you can search for, or monitor, images combined with criteria like the Vienna and Nice Classifications.

Just click on the camera icon and drag and drop an image into the search field to find similar-looking marks.

Search for exactly what you need

Select and adjust a red frame to zoom in or out of the areas you want to search for.



See up to 100 results at once

With three different viewing options:

Detail



List



Images



Combine with other search criteria

Such as trade mark name, type or filing date, etc.



Power your search with classification

Combine your image search with the Vienna and Nice Classifications. Available in advanced search.



Upload different formats

You can use any of these formats:

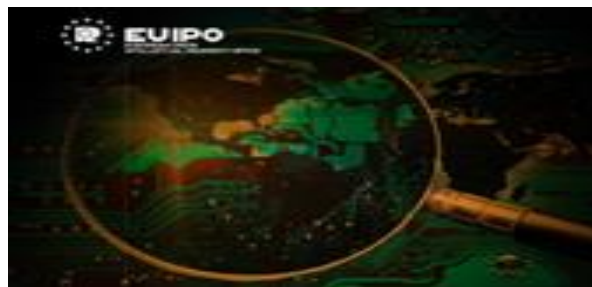


Colour search

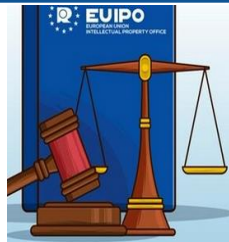
Look for trade marks registered specifically for colour protection.



EUIPO - AI



- *Joint project:* the European Commission, the Translation Centre of the EU and the EUIPO work closely together to improve translations available on eSearch Case Law
- As a result, **automatic translations** are now of better quality and available in more language combinations and for more types of decisions
- The service currently covers a total of **28 language combinations**



Effect on *substantive law finding*

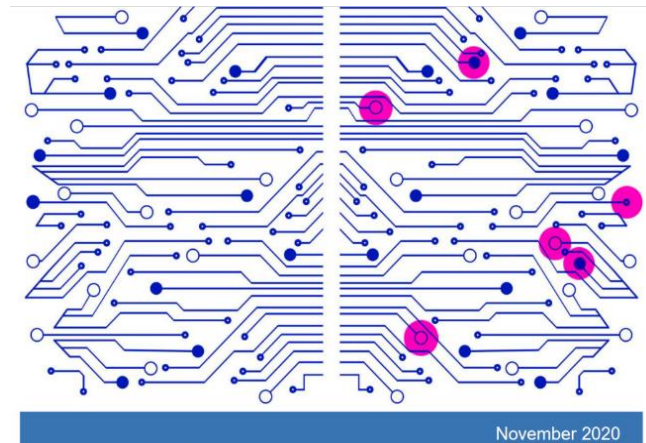
Relative grounds for refusal: AI-based **comparison tool for goods and services**

- Algorithm to assess a given pair of goods and services that allows for a **prediction on the similarity** of goods and services based on the comparison of historical data, from **420.000 pairs**
- Additional provision of the **relevant reasoning** from previous decisions
- Effect: **streamlining of decisions (previsibility)**

EUIPO – AI (enforcement)

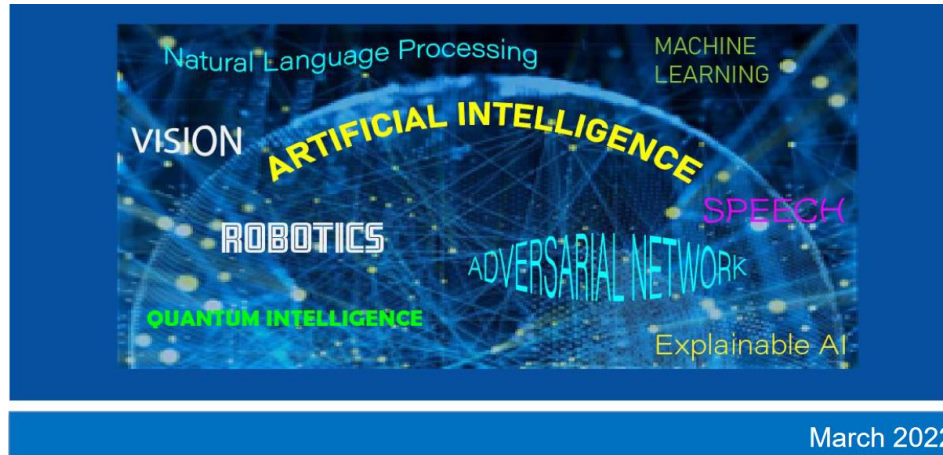
European Observatory on Infringements of IPRs

<https://euipo.europa.eu/ohimportal/en/european-observatory>



- **Automated Content Recognition:**
Discussion Paper – Phase 1
'Existing technologies and their impact on IP'
- AI-based solutions supporting the recognition of unique elements (via logo, label, text, object recognition)
- https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/reports/2020_Automated_Content_Recognition/2020_Automated_Content_Recognition_Discussion_Paper_Full_EN.pdf

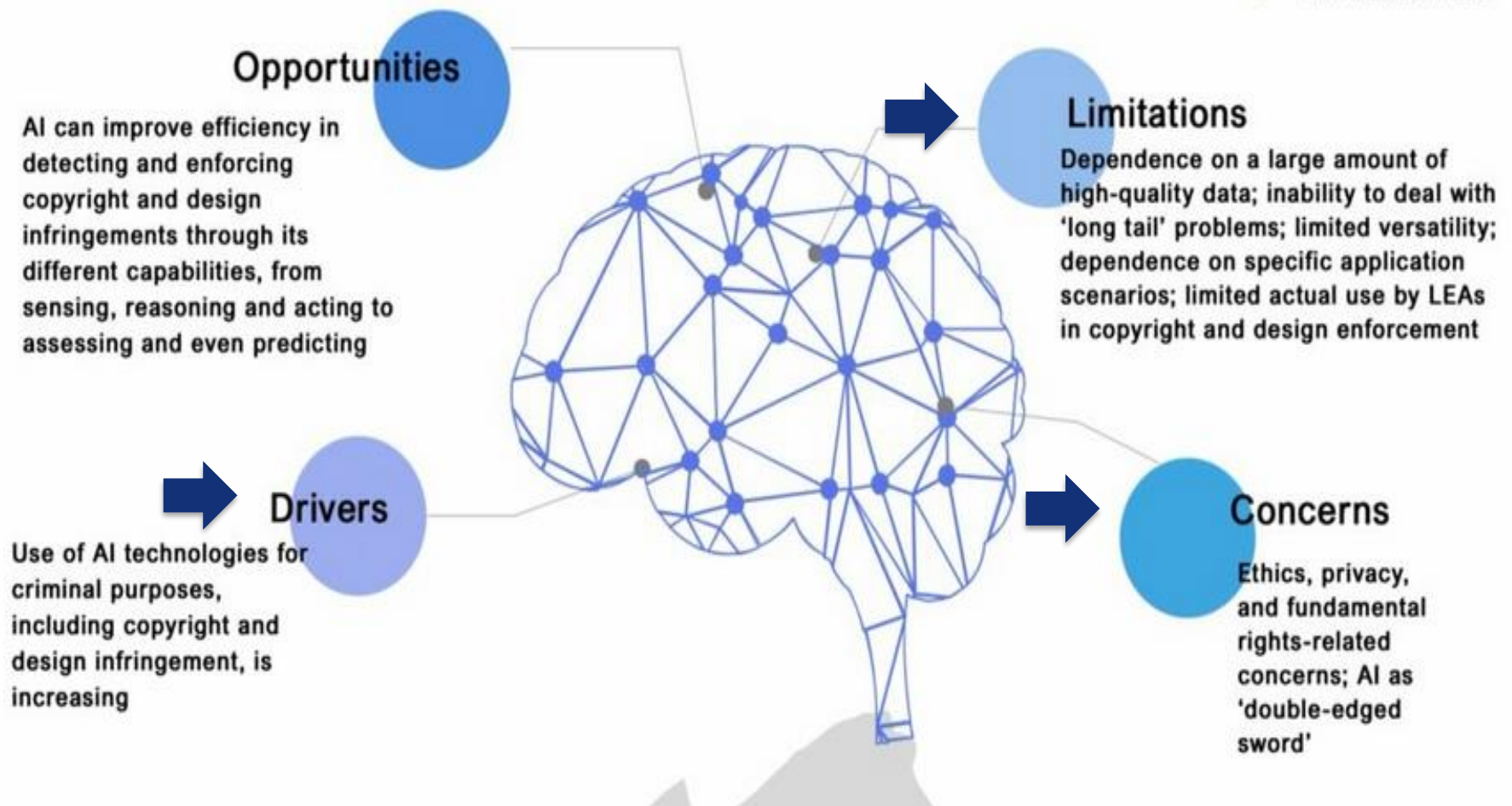
EUIPO – AI (enforcement)



March 2022

- EUIPO study on the impact of AI on the infringement and enforcement of copyright and designs (2022)
- https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/reports/2022_Impact_AI_on_the_Infringement_and_Enforcement_CR_Designs/2022_Impact_AI_on_the_Infringement_and_Enforcement_CR_Designs_FullR_en.pdf

AI and copyright & design infringement and enforcement



EUIPO - Blockchain



- First ever European blockchain platform to better serve public IP institutions and their clients
- As a first step, EUIPO installed **its own IP Register in blockchain node**
- Then, it connected its new IP Register in blockchain node to its search platforms **TMview and DesignView** and transferred its records
- Note: these services contain more than 100 million trade marks and 17 million designs (based on collaboration with 72 IP offices)

EUIPO – Blockchain



Perceived advantages of Blockchain-based IP systems:

- **Traceability** - provision of the **full history** of a given IP right, which can be traced and audited
- Delivery of trade mark and design data in **real time, reliable and secure**
- **Automation and harmonisation of processes and interactions** – leading to elimination of unnecessary steps and cost reduction

EUIPO - Blockchain



Logical consequence:

- **International interest** of IP offices in joining EUIPO's blockchain platform is growing
- First national offices, which **joined EUIPO's blockchain platform**: Malta, Estonia, Lithuania

EUIPO – Blockchain (enforcement)



- EUIPO, in collaboration with the EU Commission, is exploring the potential of **track and trace solutions** based on blockchain technology to protect IP rights (particularly, as regards the authenticity in the supply chain)
- **Anti-Counterfeiting Blockathon Forum:**
2022-winning solution to guarantee access to data related to goods throughout supply chain



AI and Blockchain at

CPVO (EU)



- The CPVO is **not using AI and blockchain yet**
- However, these technologies are in the pipeline for the future, as part of the envisaged digital transformation of the office

AI and Blockchain at

EPO

(original) slides by courtesy of EPO, ©

State at EPO - Strategic Plan 2023

<https://www.epo.org/about-us/office/strategy.html>

Our goals for 2023

The Strategic Plan comprises five goals, each of which has several key initiatives.

Goal 1

Engaged and empowered

1

Read more

Goal 2

Digital transformation

2

Read more

Goal 3

Master quality

3

Read more

Goal 4

Partner for positive impact

4

Read more

Goal 5

Secure sustainability

5

Read more

**Programme
Artificial
Intelligence &
Blockchain**

Programme breakdown



Artificial Intelligence Essentials

Computer Vision

- Patent figures
- Facsimiles parsing e.g. tables
- Understanding figure content

KPI3.2
Quality of search and examination (%)
(Internal Audit)

Natural Language Processing

- Managing patent language
- Patent syntax in general
- e.g. claim syntax specifically

KPI3.2
Quality of search and examination (%)
(Internal Audit)

Machine Translation

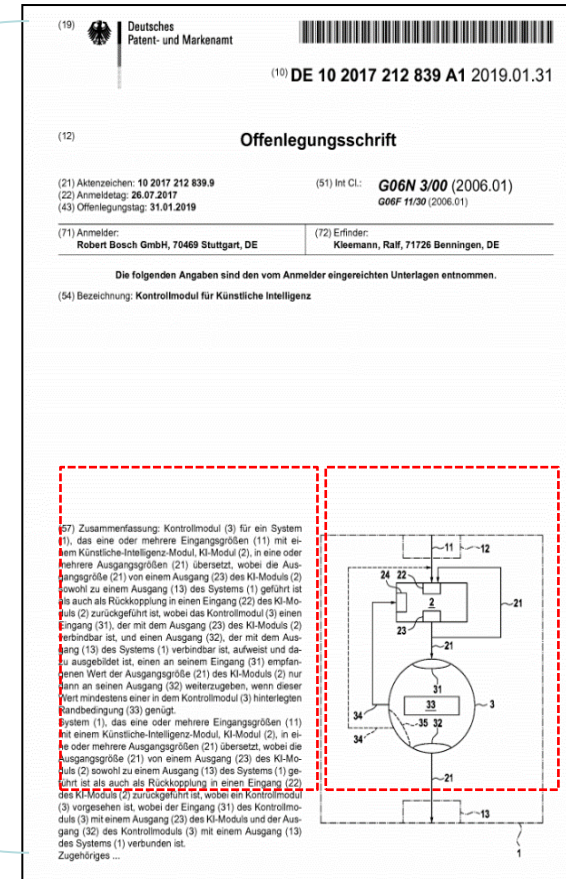
- Specific to our business needs
- Build on patent content
- Proven to improve PreSearch/PreCla

KPI3.2
Quality of search and examination (%)
(Internal Audit)

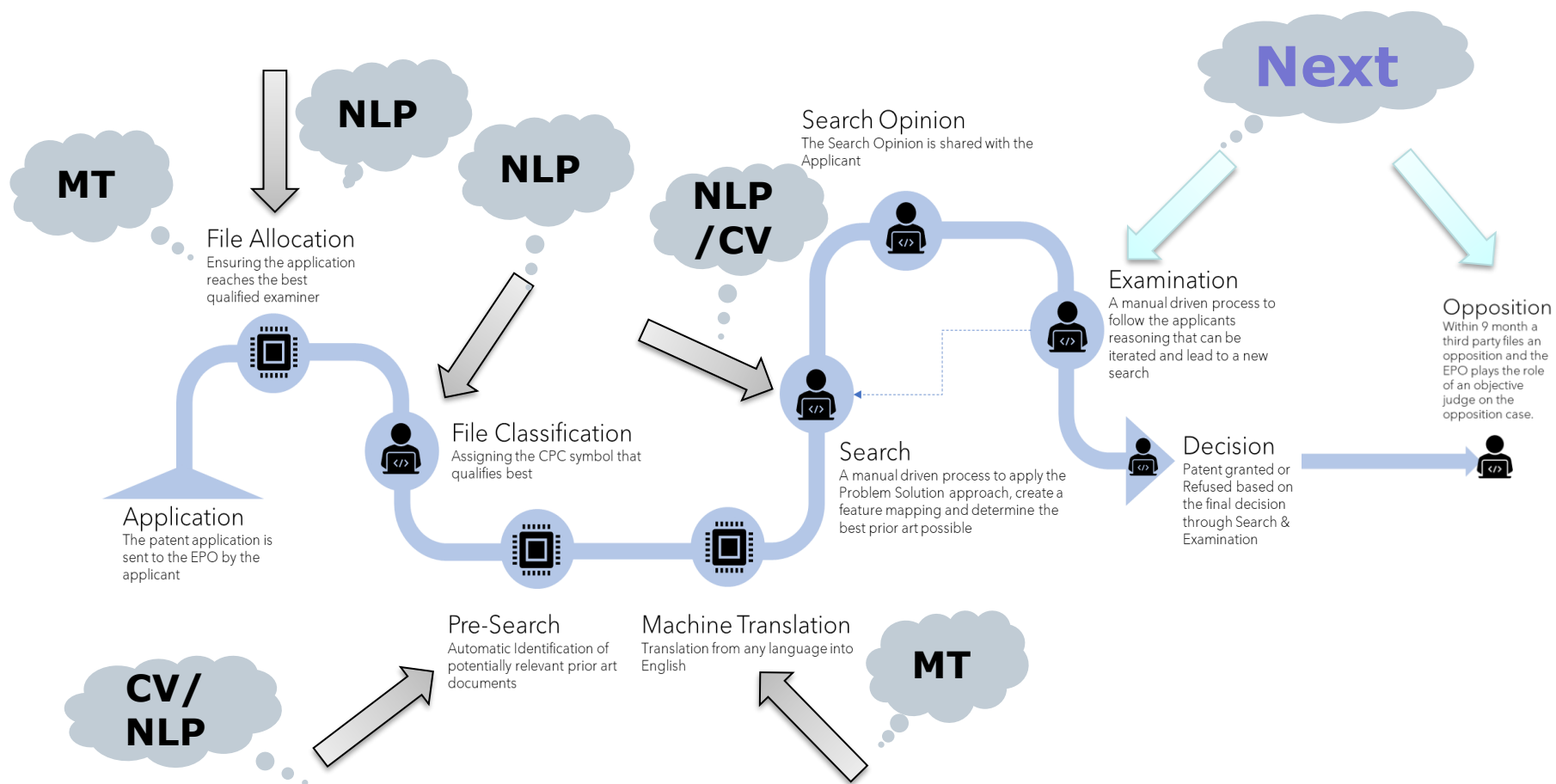
Blockchain

Prototype for exchange of priority documents between IP offices

KPI3.2
Quality of search and examination (%)
(Internal Audit)



The simplified patent grant process



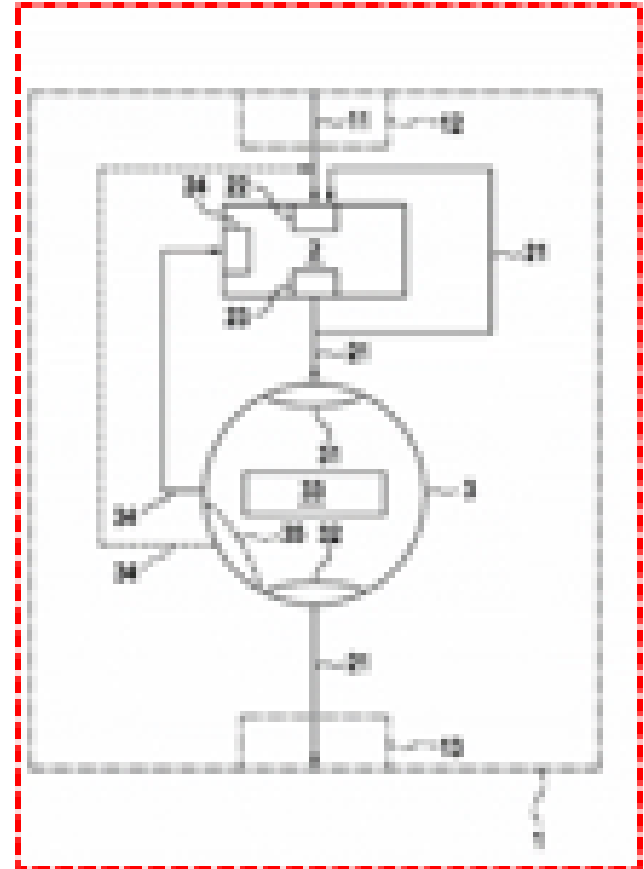
The challenges in Computer Vision

Object Detection

- Used for prior art search
- Detection of individual figurative references and pixels
- Linkage to text

Estimated **1 Billion** figures

- Still *two month* processing
- Moving towards 300 pages per second, to process 700 000 000 figure pages in a month



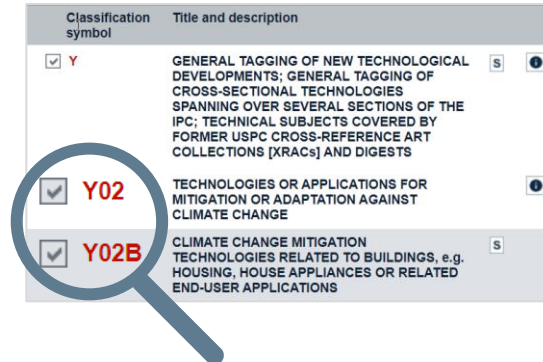
The challenges in **NLP** (Natural Language Processing)

1. Find the relevant **team**



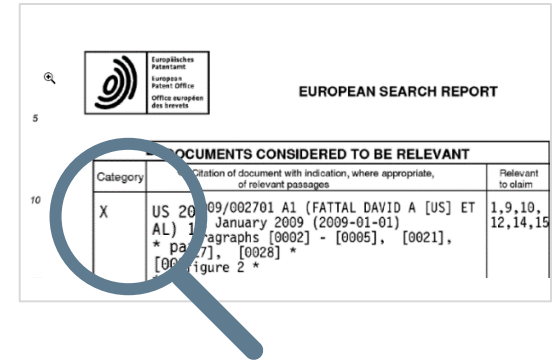
Pre-Classification

2. Find the relevant **classes**



Classification

3. Find the relevant **documents (50)**



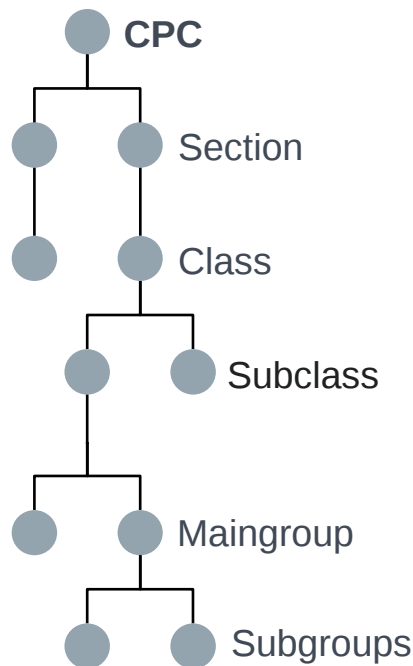
Pre-Search

Note - particular methodology needed:

- Wikipedia system does not work, as language too complicated
- Specific system for patent title, abstract, claims, description

In depth view of one AI –NLP model:

Classification – CPC classification, as regards simple family level

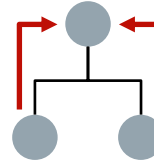


Data available

Background:

~250.000 symbols in CPC
(as very find technical details)

Chosen approach:
Aggregate up until
a) Main group or
b) Until 50 docs are collected



Leading to data pool of
85.000 symbols after
aggregation

→ 33% of CPC

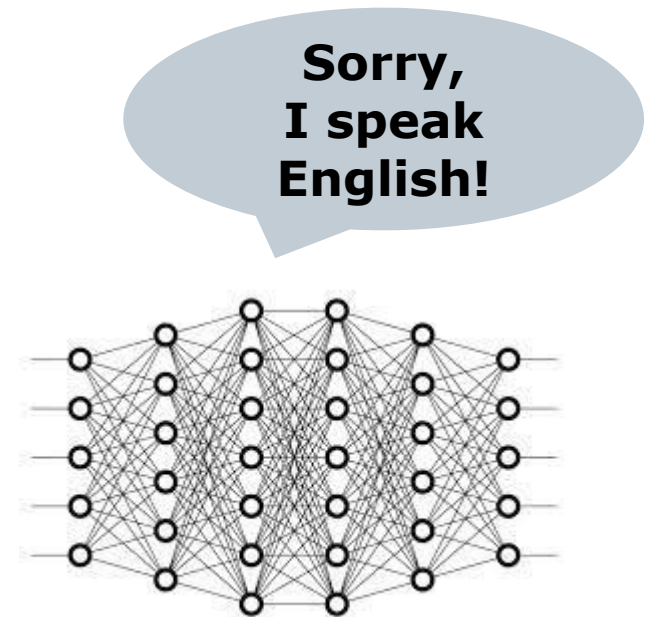
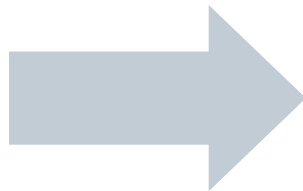


**Application in
practice - result
with 800k families
from 2021:**

**Unique symbols
coverage:
48.4%**

**Total symbols
coverage:
91.7%**

The challenges in **Machine Translation**



Tower of Babel

Applications in French, German, Dutch, Italian, Spanish (= EPC), plus Chinese, Japanese, ... and Korean is in the planning !

**Extremely complex language:
Own AI-system needed**

Linked to: PreSearch, Auto classification, Search

Conclusions (EPO)

- 1. EPO is investing in its AI capabilities to ensure: **Consistency, Quality and Timeliness** of its products*
- 2. Artificial Intelligence offers **powerful opportunities along the patent grant process***
- 3. Decisions are **always with human experts***
- 4. Needs a specific skill set – **no auto-mentality***
- 5. EPO expects a shift in the way patent professional work – **inside and outside the IP offices***



Thank you for your attention!