



European IP Helpdesk

Stay ahead of the innovation game.

**European IP Helpdesk
Artificial Intelligence - Advanced**

13.11.2024





European IP Helpdesk

- Service initiative of the European Commission
- Addressing **current and potential beneficiaries of EU-funded projects, researchers and EU SMEs**
- Free-of-charge first-line support on intellectual property (IP)
- Hands-on IP and innovation management support
- International pool of IP experts from various thematic fields
- Unique cooperation scheme with the Enterprise Europe Network: 43 ambassadors from 26 EU countries



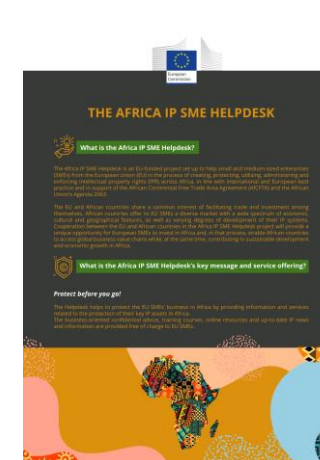
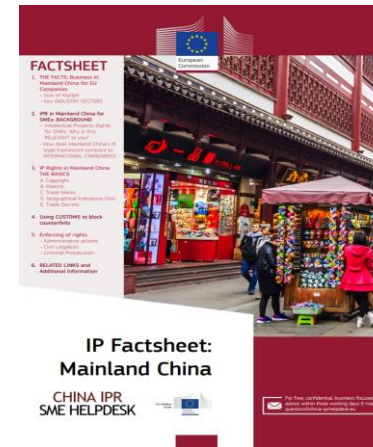
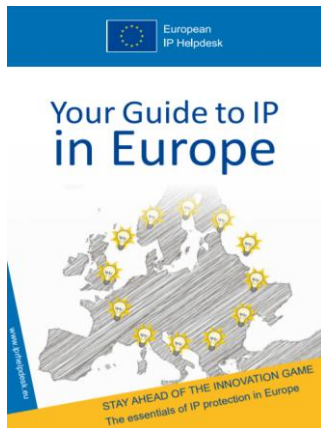


The EC IP Helpdesks





EC IP (SME) Helpdesk Hub – Gateway to Information



- E-learning modules & more
- Guides / Topic, country, sector-specific factsheets / Infographics
- Case studies



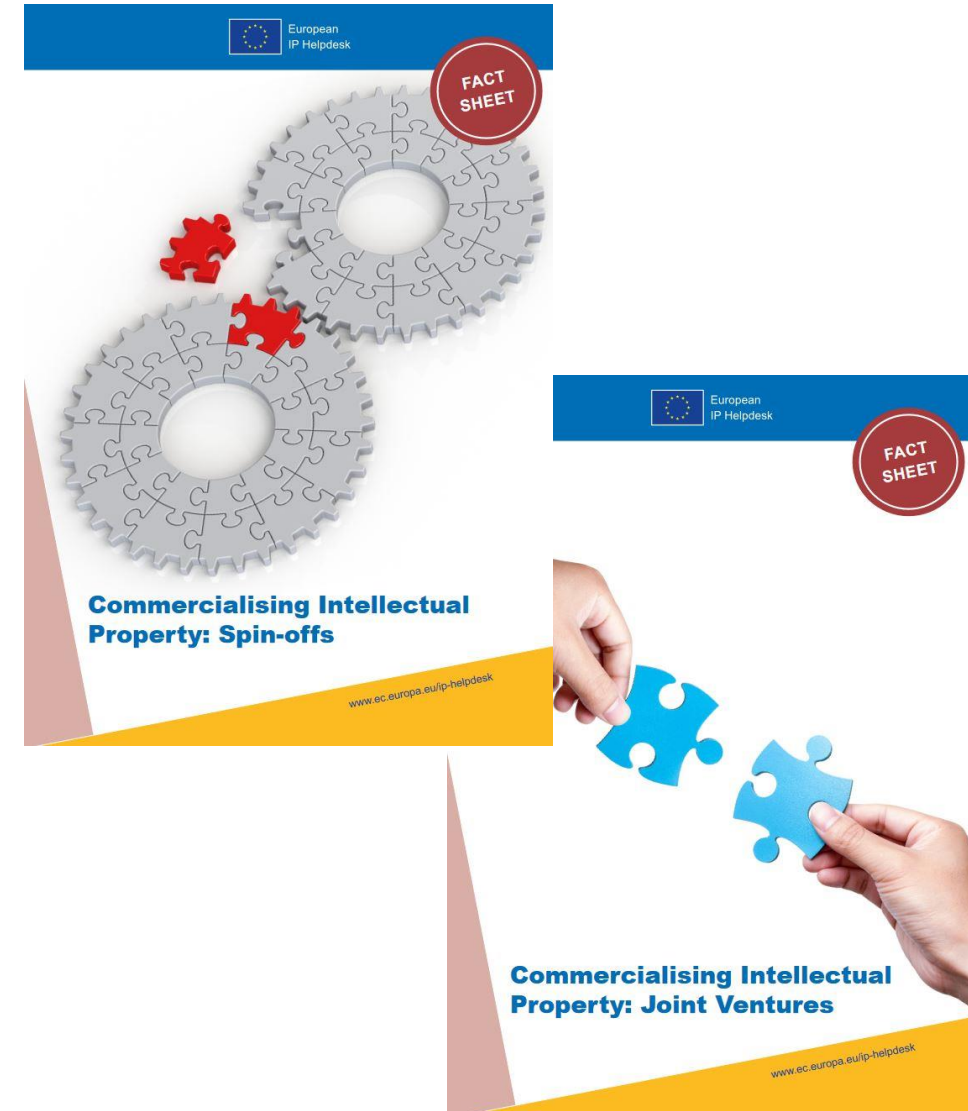
Two new Fact Sheets:

[Commercialising Intellectual Property: Joint Ventures](#)

[Commercialising Intellectual Property: Spin-Offs](#)

New IP Special:

[Generative Artificial Intelligence](#)





Ambassador Scheme

- **Cooperation scheme** with the Enterprise Europe Network (EEN): 43 ambassadors – 26 countries
- **Building IP capacities** among European SMEs
- **Overcoming language barriers**
- Making the topic **more accessible**
- Exchange and feedback from ambassadors on **needs of SMEs**
- Local **awareness** and **training events**





Upcoming events



14
NOV
2024

Training and workshops

[EU - Webinar: Consortium Agreements](#)

🔗 Live streaming available

19
NOV
2024

Training and workshops

[EU - Webinar: Finding Patents](#)

🔗 Live streaming available

27
NOV
2024

Training and workshops

[EU - Webinar: Addressing IP impact and innovation in EU projects](#)

🔗 Live streaming available

04
DEC
2024

Training and workshops

[EU - Webinar & Horizon Results Platform: Thinking international - International business Opportunities](#)

🔗 Live streaming available

14
NOV
2024

Training and workshops

[European IP Helpdesk&EIT Digital: SPIN Explore](#)

21
NOV
2024

Training and workshops

[EPO - Webinar: How to make best use of the Unitary Patent System](#)

03
DEC
2024

Training and workshops

[EU - Webinar: Maximizing the Impact of Horizon project \(HEU\) results](#)

🔗 Live streaming available

10
DEC
2024

Conferences and summits

[Driving EU Prosperity: The Future of Knowledge Valorisation](#)

📍 Brussels, Belgium



Thank you!

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- training@iprhelpdesk.eu
- X [@iprhelpdesk](https://twitter.com/iprhelpdesk)
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About me

- BA Physics, Oxford University
- MSc Physics, Sheffield University
- PhD Semiconductors Sheffield University
- EPO Examiner – the Hague
- IBM Germany – Patent Engineer
- W.L.Gore & Associates – European IP Counsel
- Founding Partner, Sonnenberg Harrison
- Advisory Board Member
- IP Strategy



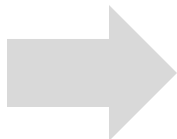
Artificial Intelligence

What do we mean?

Technology for future



Databases



Learning



Analysis



Result

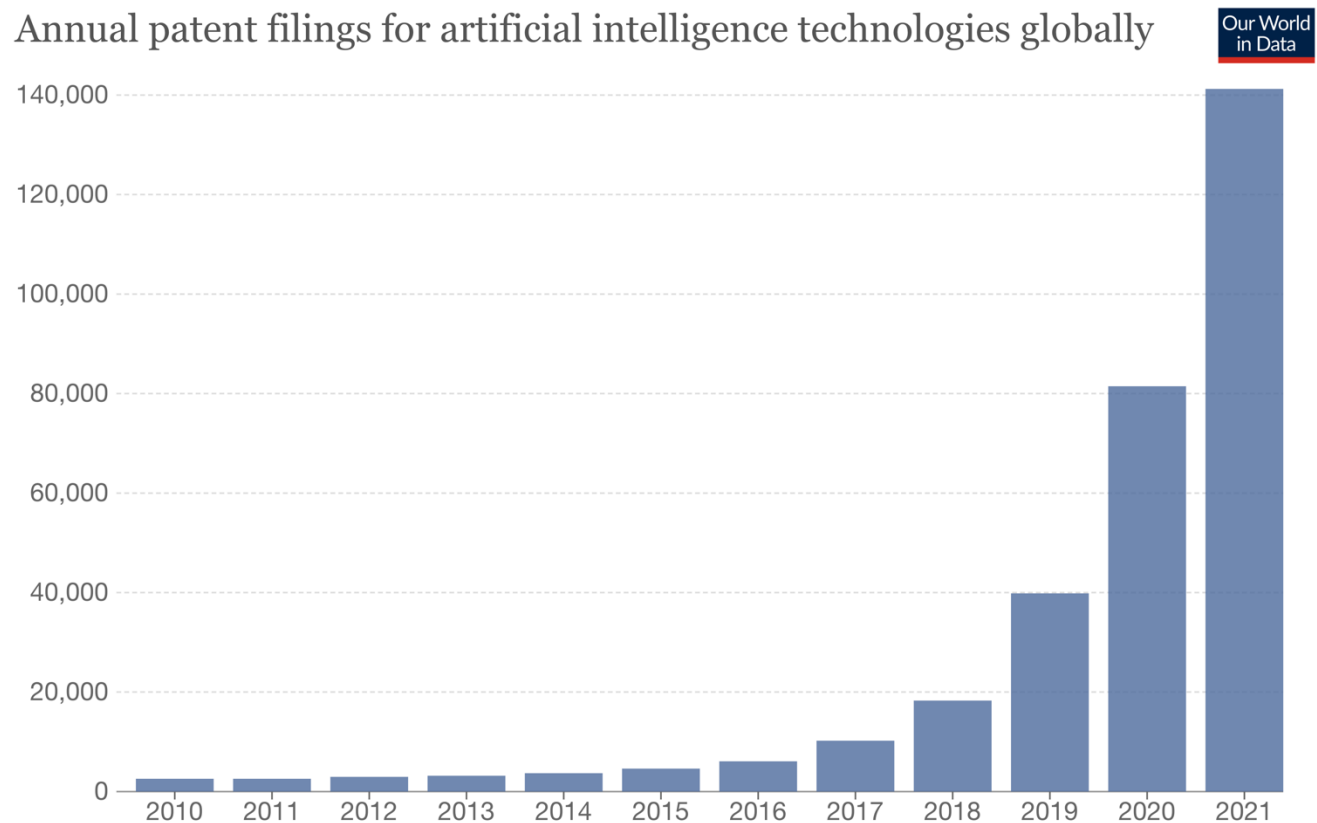


Input





Increase in Patent Applications



Source: Center for Security and Emerging Technology via AI Index Report (2022)

OurWorldInData.org/artificial-intelligence • CC BY

Note: Based on a search of relevant codes and keywords in the Cooperative Patent Classification and International Patent Classification systems.





IP and Artificial Intelligence



Data ownership



Trade Secrets



Copyright



Patents



European Parliament Resolution 20 October 2020

- Importance of IPR Protection
- Economic incentives
- Emphasizes need for technical innovation
- Comprehensive description and notes that this may be a challenge
- No legal personality to AI creations

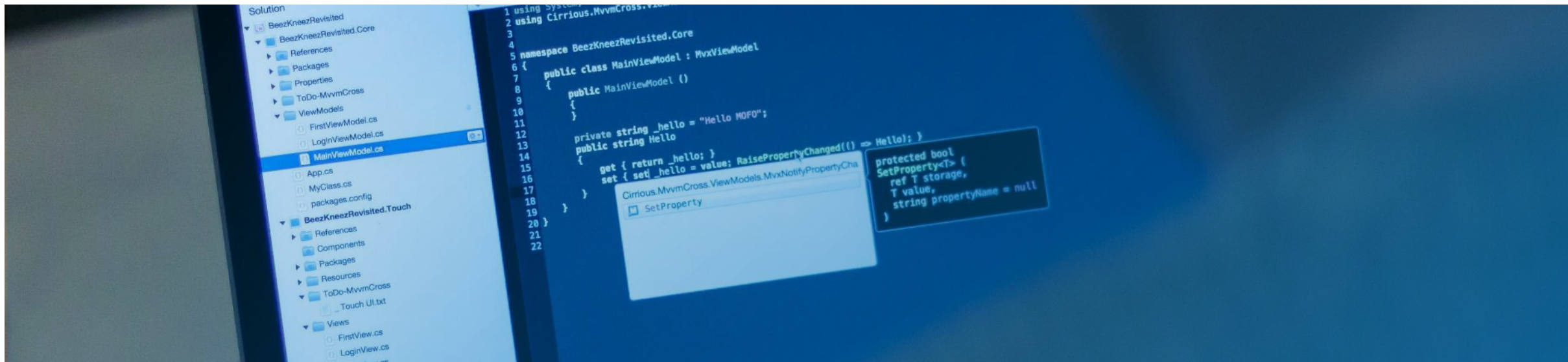




Data Rights and Ownership



Who owns data?



**Can we really talk
about “ownership”?**

Different countries have different legal concepts

Various EU acts will regulate governance of data -> principles of open data.

Contractual relationships most important.



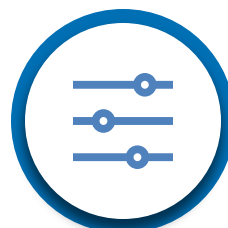
Copyright



Copyright Ownership



Level of Creativity Required for
Copyright Protection



Data per se will not have this level

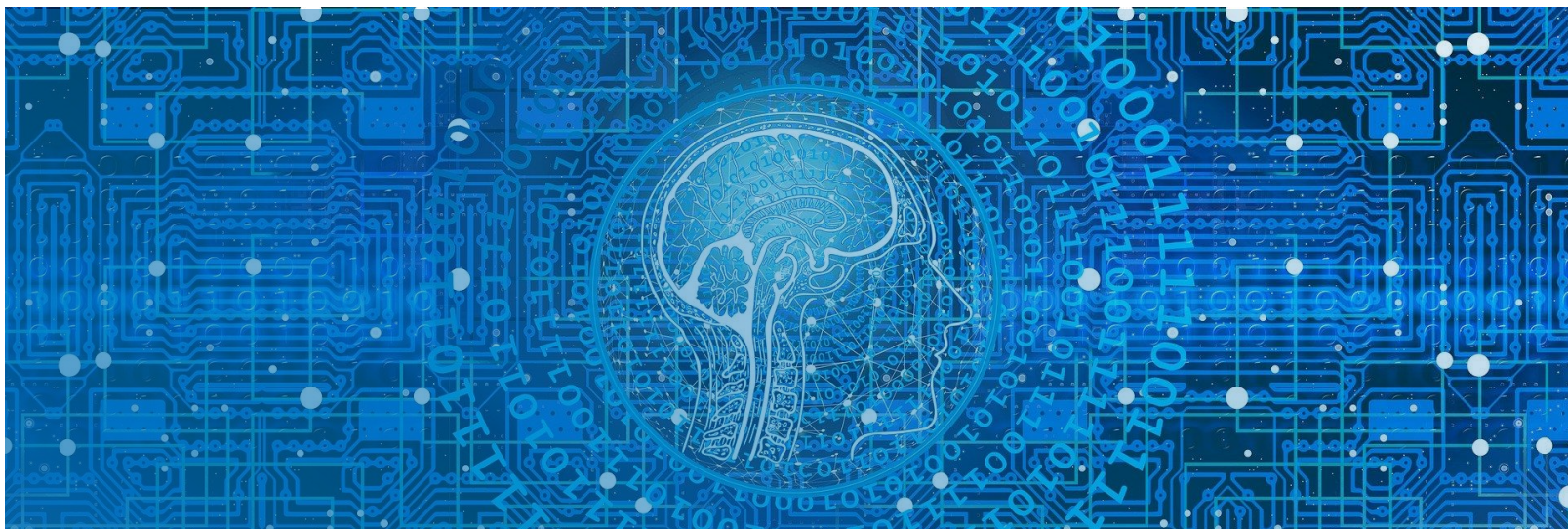
Compilations of data may enjoy
copyright protection



Software is protected – under
Berne Convention



Copyright of Generated Works



US: Author of
copyright
cannot be a
computer



UK: Copyright Patent and Design Act 1988

- Computer-generated works
- Owned by Person who made “Arrangements”
- Only one court decision



Europe / Japan Dialogue

- Is copyright possible?
- Who owns the product?



Infringement

- Use of Images and Text -> Fair Use?

EU Copyright in Single Market Directive:

Art 3: Text and Data Mining (TDM) allowed by research organisation and cultural institutions for research

Art 4: Text and Data Mining allowed -> but rightsholders can “opt-out”

Laion e.V. vs. Kneschke Photographer
District Court of Hamburg File: 310 O 227/23
27 Sept -> TDM allowed





Database Rights (Europe)



Protects collation
of data



Significant
Investment



Not individual
data items



Database Rights for AI



European Commission has recognized issue



Data Governance Act removed protection for device-generated data



Databases are valuable assets for Digital Economy



Principles of Open Data apply to data generated by public authorities



Trade Secrets



Rise of Trade Secrets

IBM Director of Research (Darío Gill):

“balancing trade secrets and patents alongside a style of R&D called open innovation”

From Fortune **“Why IBM is no longer interested in breaking patent records”**, Darío Gill, 6 January 2023.

Source: <https://fortune-com.cdn.ampproject.org/c/s/fortune.com/2023/01/06/ibm-patent-record-how-to-measure-innovation-open-source-quantum-computing-tech/amp/>



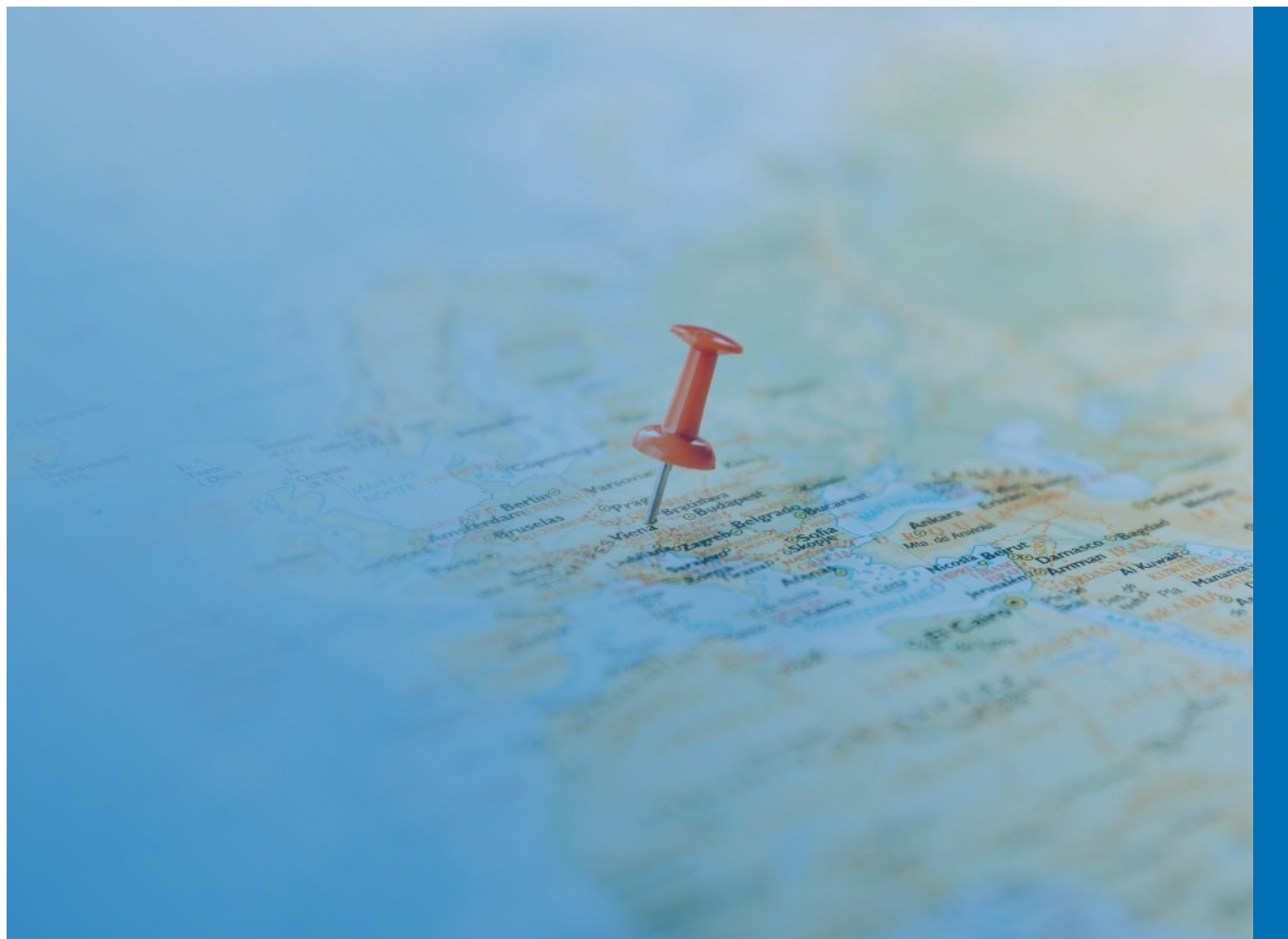
Photograph Stuart Isett/Fortune from [Flickr](#), License [link](#)



Patent Rights



National Rights



Different countries treat AI differently



AI is often seen as software-based



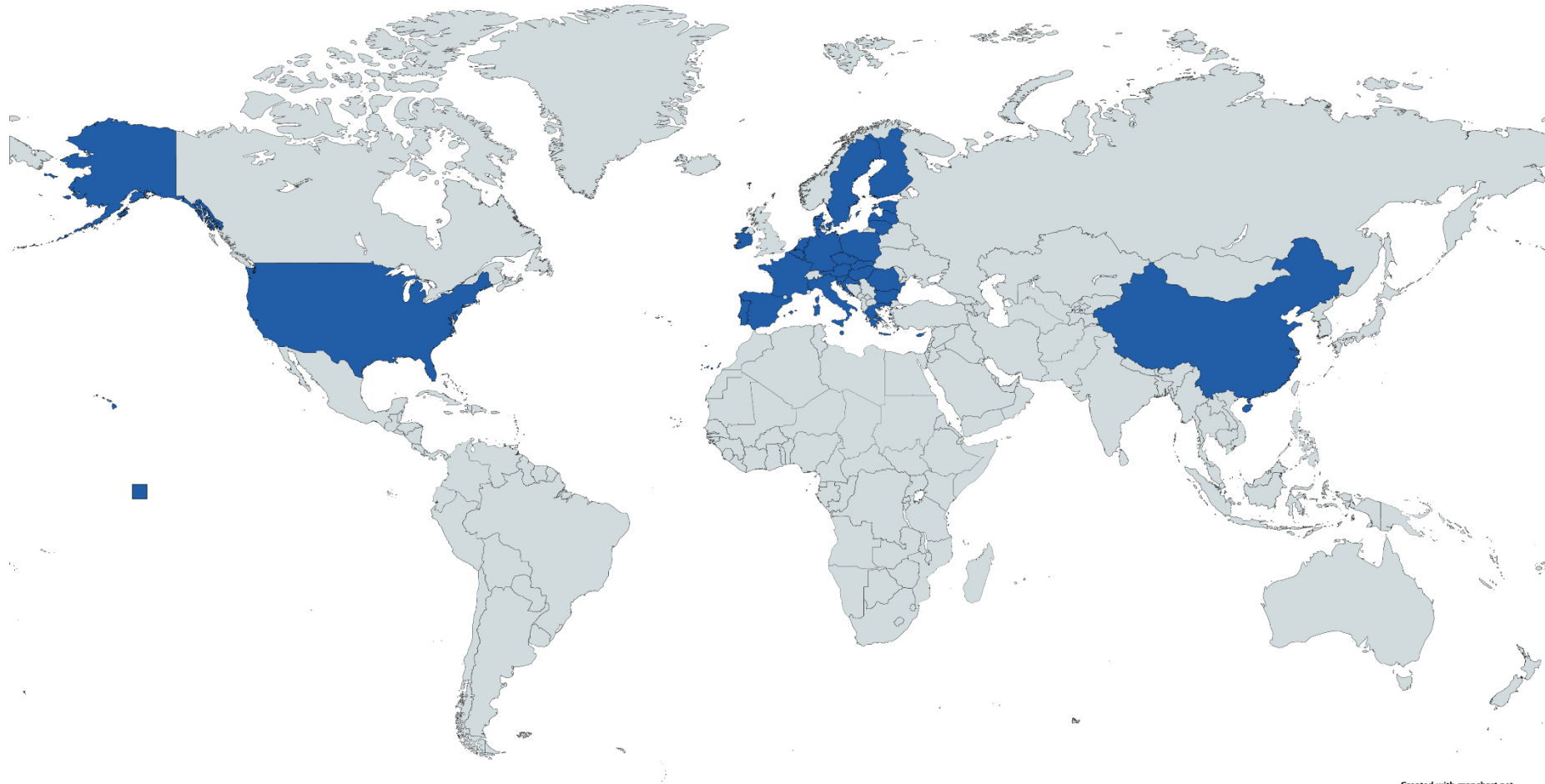
US – rejects “abstract idea”
§101 rejections



EU – “software excluded from patents per se”
Guidelines emphasise that AI is to be treated as mathematical method



Focus on US and Europe

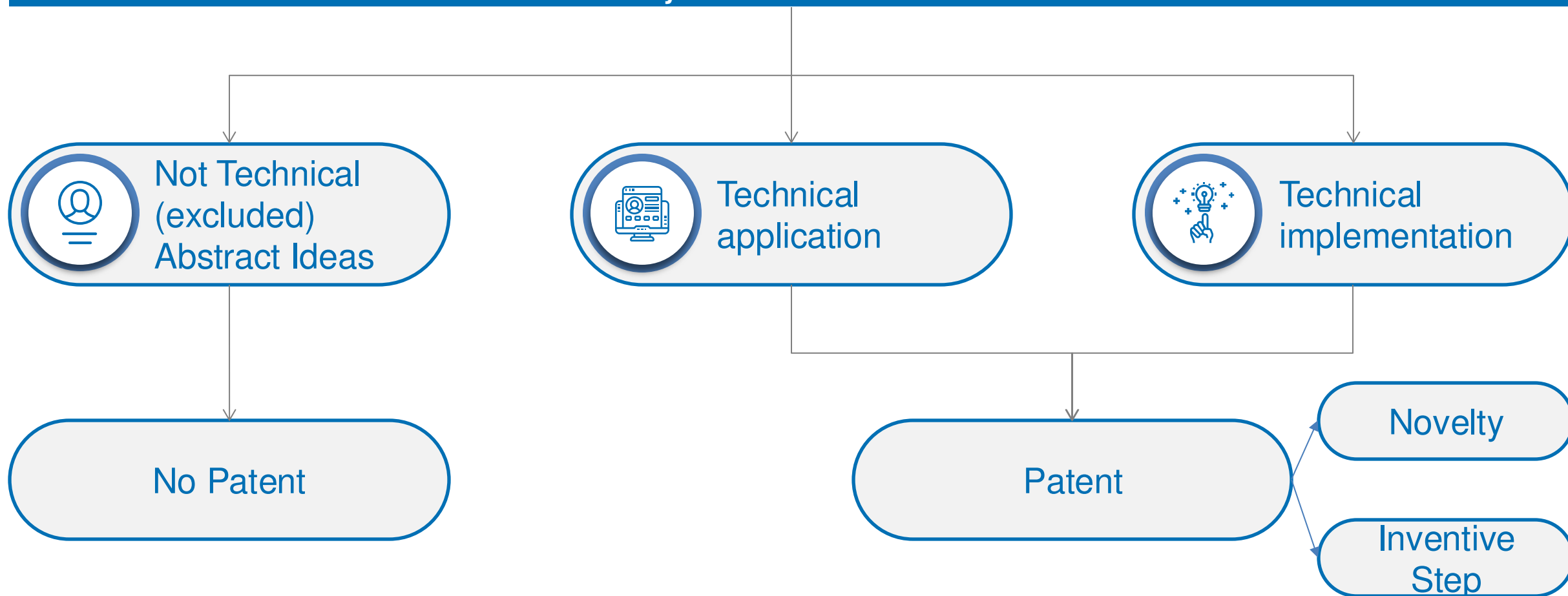




EPO Test for Patentability

Generalised Approach (“Two-Hurdle” Approach)

Confirmed by G1/19 – Pedestrian Simulation





Overcoming non-technical / abstract objection



Language of claims is
relevant



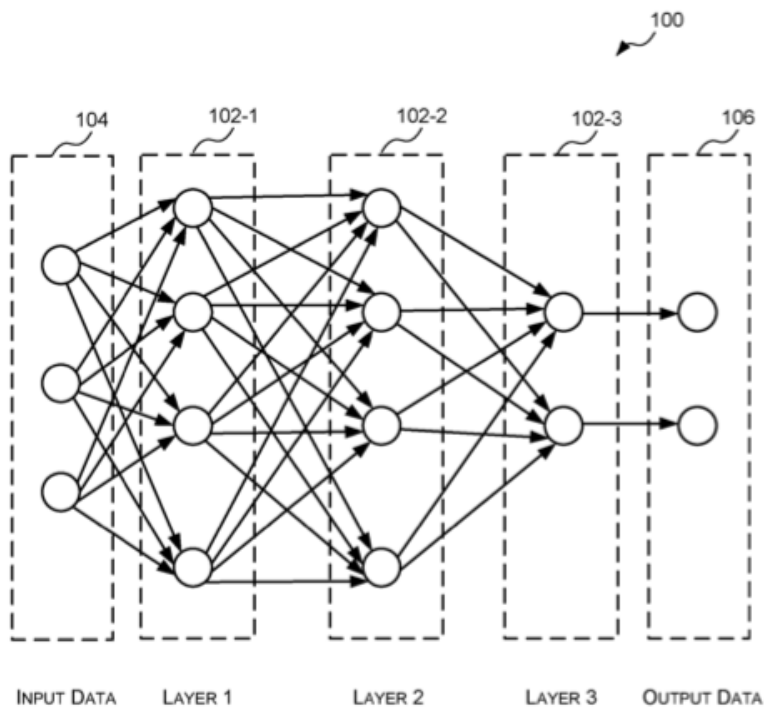
Computer-
Implemented
Method



Emphasizing
interaction with
hardware elements



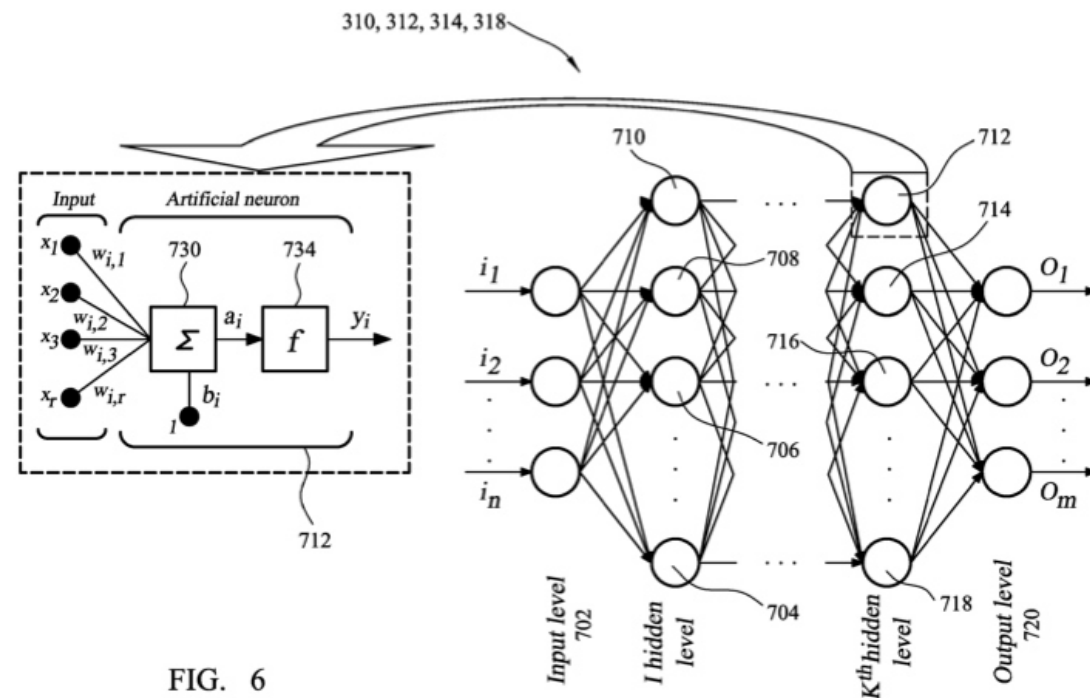
Excluded from Patentability?



- UK Patent Application GB **2574372** (Decision BL O/296/21)
- Implementing Traditional Computer Vision Algorithms As Neural Networks
- Claim: A method of implementing processing images in accordance with a traditional computer vision algorithm as a neural network, the method comprising: ... mapping traditional computer vision algorithm operations to ... neural network primitives..”
- Patentable as technical contribution -> processing images more efficiently (silicon area + processing power)
- EPO objected on clarity grounds + lack of inventive step

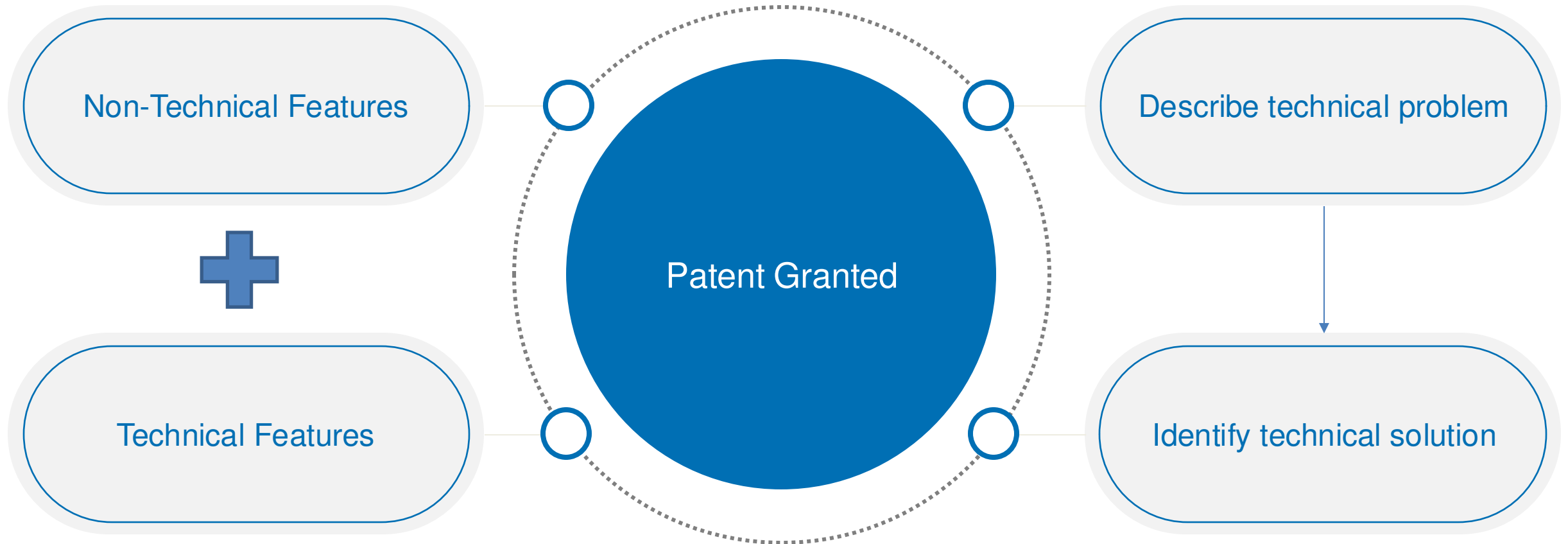
[2023] EWHC 2948 (Ch) Perception AI

- [GB2583455](#) Method of Training Neural Network ..and finding associated content.
- Claims a method and system of providing semantically relevant file recommendations
- AI System is not a program for a computer
- Trained ANN can be regarded as having a technical effect
- Appeal court rejected patent



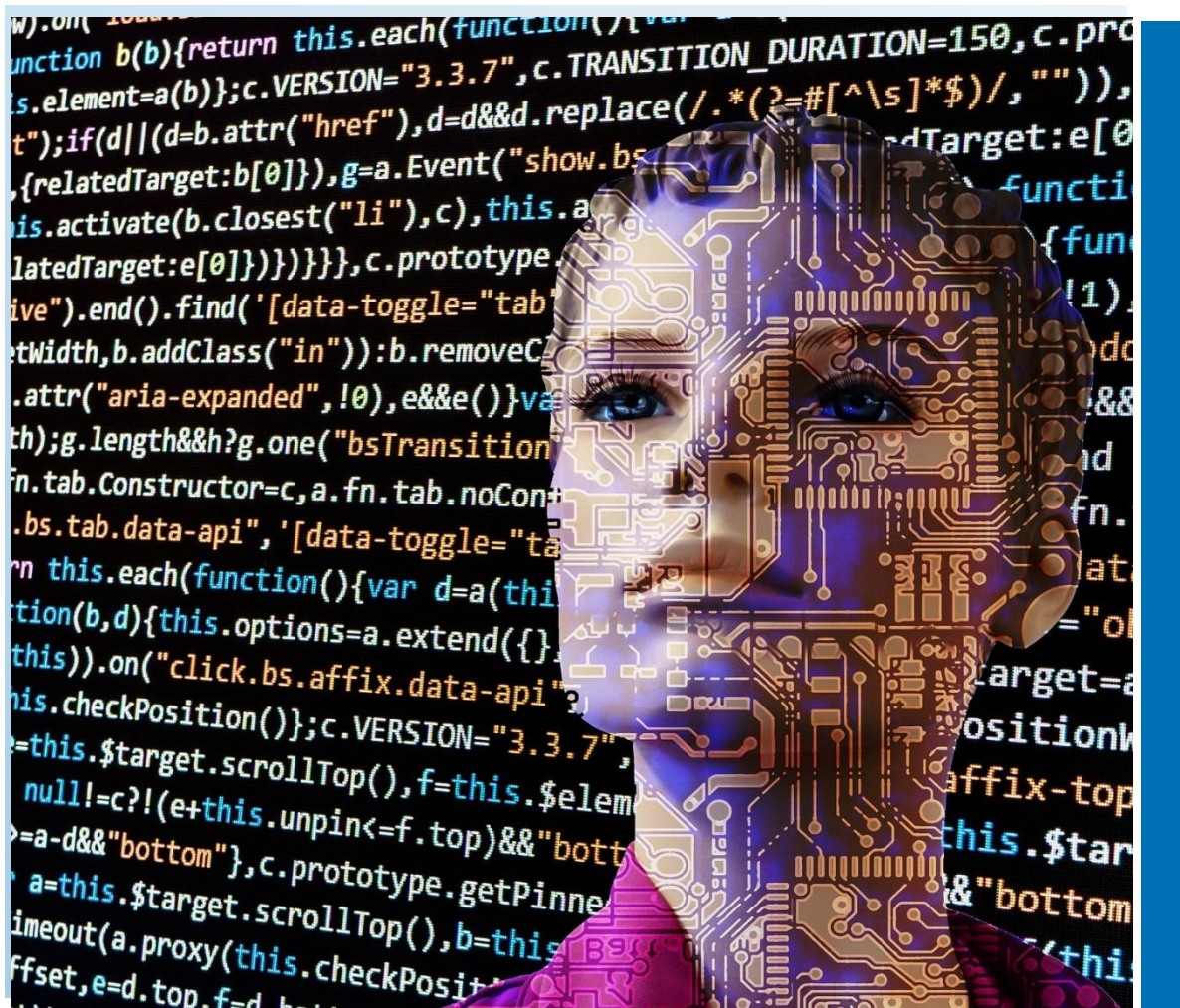


Inventive Step





Modified EPO Approach – G1/19



Exclusions

Feature contribute to
technical character?

Inventive step



Application to Artificial Intelligence

How do we apply the principles of G1/19 “Pedestrian Simulatio / Bentley” to AI?



Algorithms do not necessarily contribute to technical character of invention



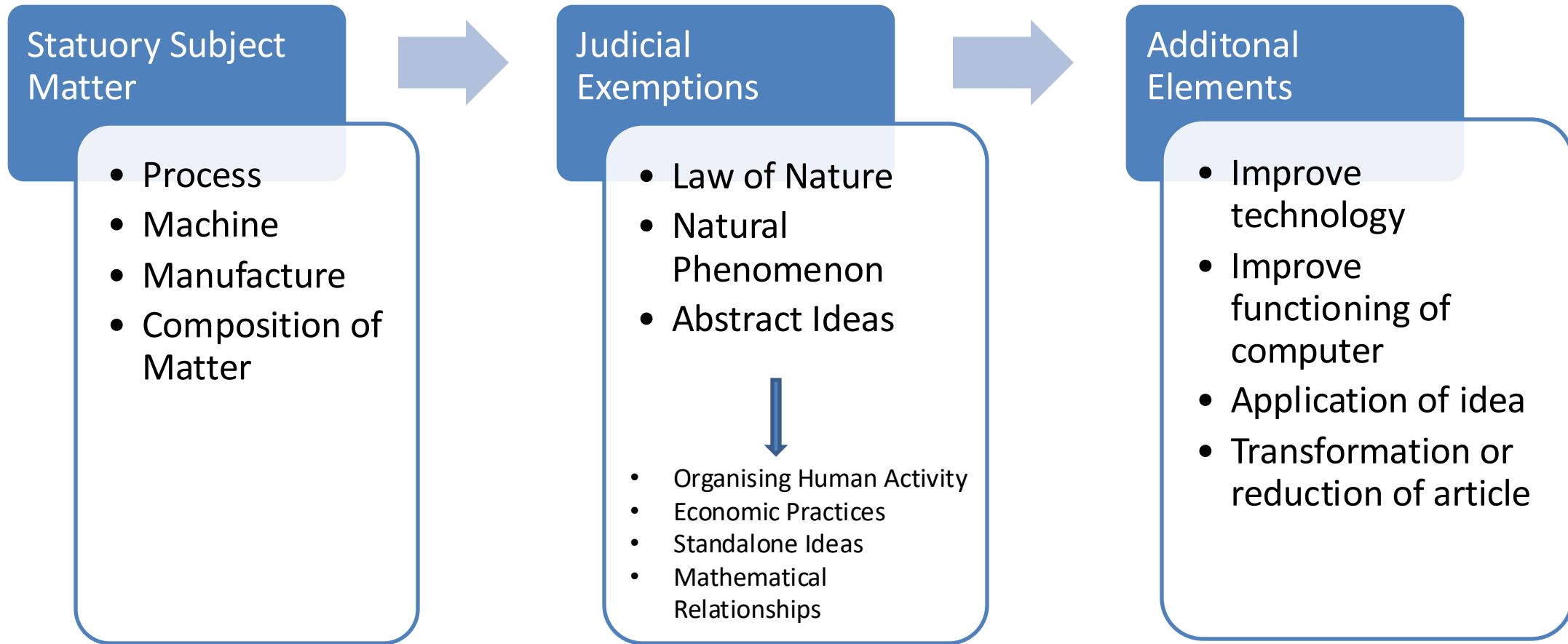
Algorithm must solve a technical purpose



Algorithm contributes to technical solution



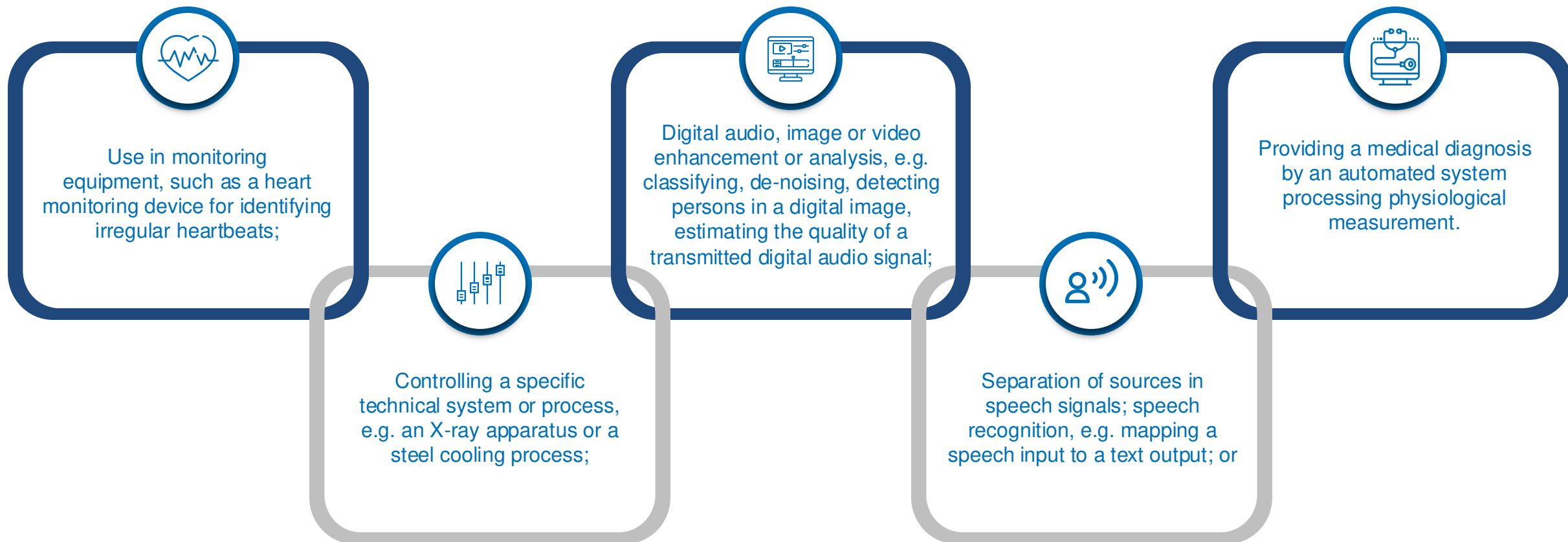
US PTO Test for Patentability





Technical Application

First Case – Technical Application of a mathematical model



This technical purpose must be specific



Technical Implementation

Second Case - Technical Implementation of a mathematical model



Mathematical method is **particularly adapted** for that implementation.



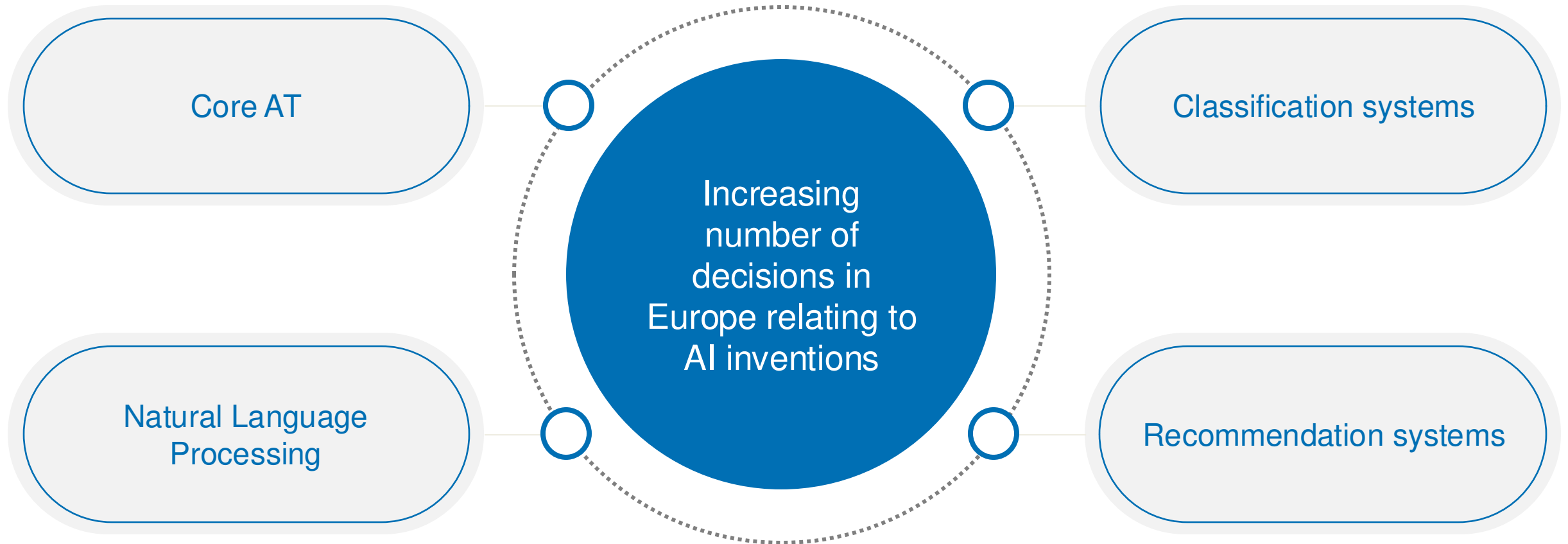
Data
collection



Interaction between
hardware elements
to collect the data



Patentability of Some AI Technologies



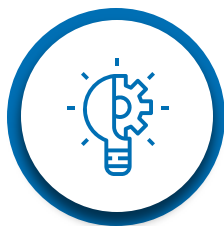


Core AI

Fundamental building blocks of AI and machine learning, as opposed to the applications of AI

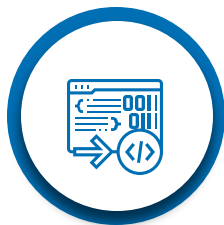
Difficult to file patent applications on innovations in this “Core AI”. EPO considers it not to be “technical”.

Overcome by specifying in detail



Implementation of the system

Working of System in new ways



New physical combination of hardware

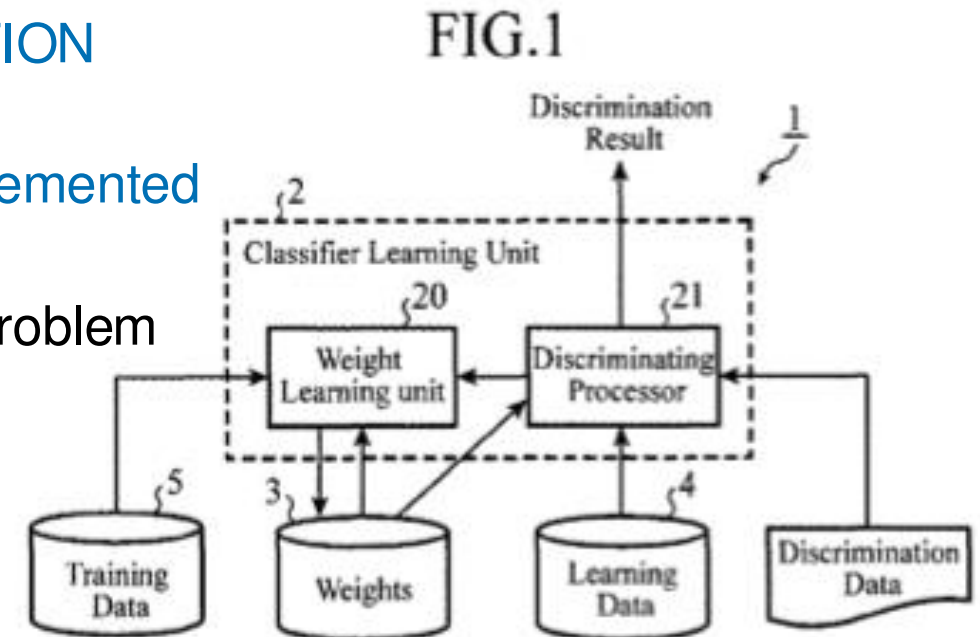
Application of algorithm to technical operation





EPO T072/20 : Neural network does not solve a technical problem

- [EP3089081A1](#) HIERARCHICAL NEURAL NETWORK DEVICE, LEARNING METHOD FOR DETERMINATION DEVICE, AND DETERMINATION METHOD
- Claims a hierarchical neural network apparatus implemented on a computer comprising....
- Subject matter of claim did not solve any technical problem
- Had effects "within the computer"





EPO T0183/20 : Minimisation of Network Bandwidth and Storage of Training Data

- [EP2634707](#) Recommender Control System Apparatus, Method and Related Aspects
- Claims a method for automatically controlling performance of a recommender system
- Technical problem solved is to reduce the use of network bandwidth and amount of storage in a communications system, including a client device and a recommender system in communication with the client device.

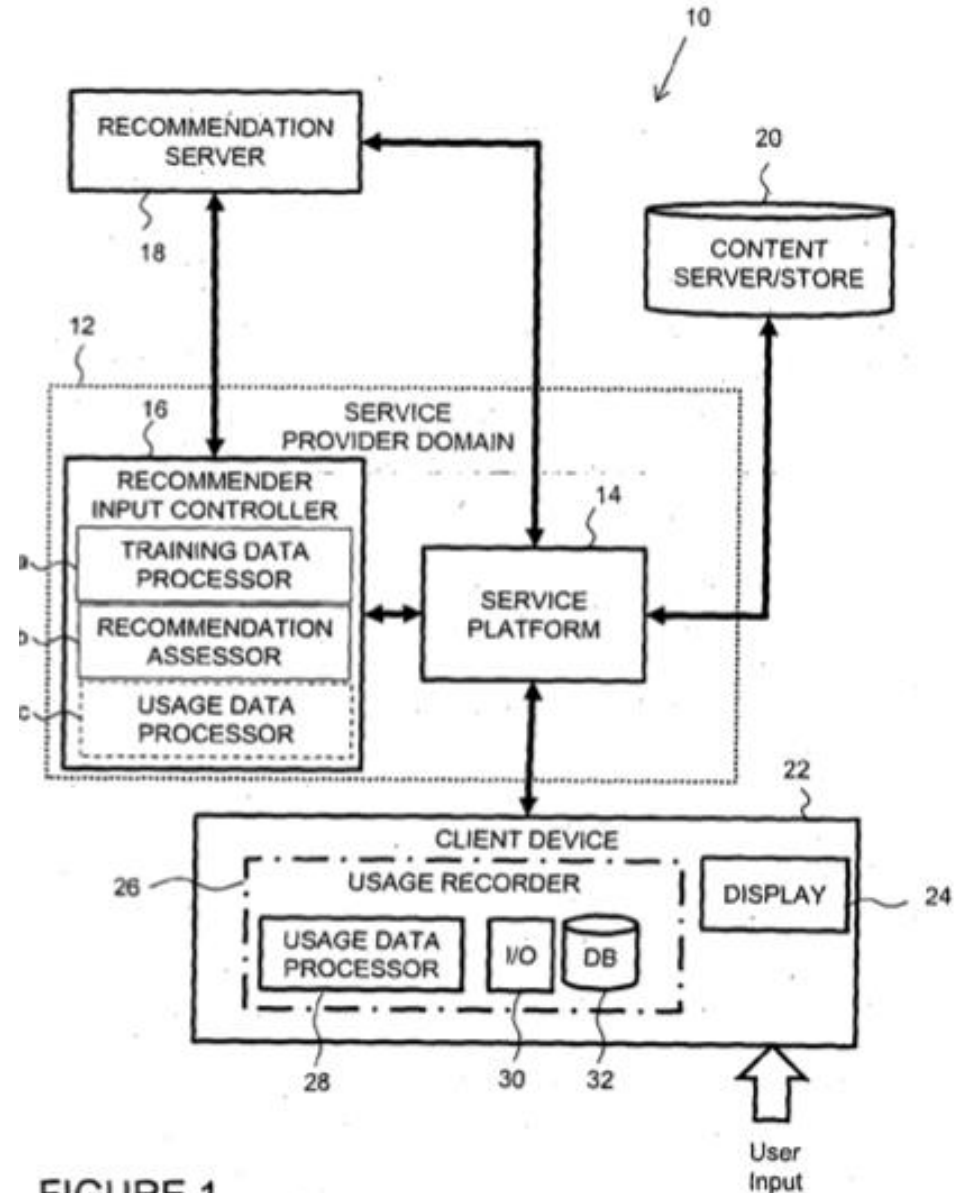


FIGURE 1



Summary of Decisions in EPO

- AR (augmented reality) overlays in context of social networks, based on geographic location T1066/22 – technical (obvious)
- Fulfilment of phone protection plan T0905/21 – not technical
- Training machine learning models (neural networks) T1425/21 – not technical
- Translating text in images T0145/21 – not technical
- Training VOD recommender system T0183/21 – technical
- Machine translation T1177/97 – not technical
- Image Classifier T1286/09 - technical
- Training of neural network – T0161/18 – insufficiently disclosed
- Classifying and Linking Documents T1784/06 – not technical

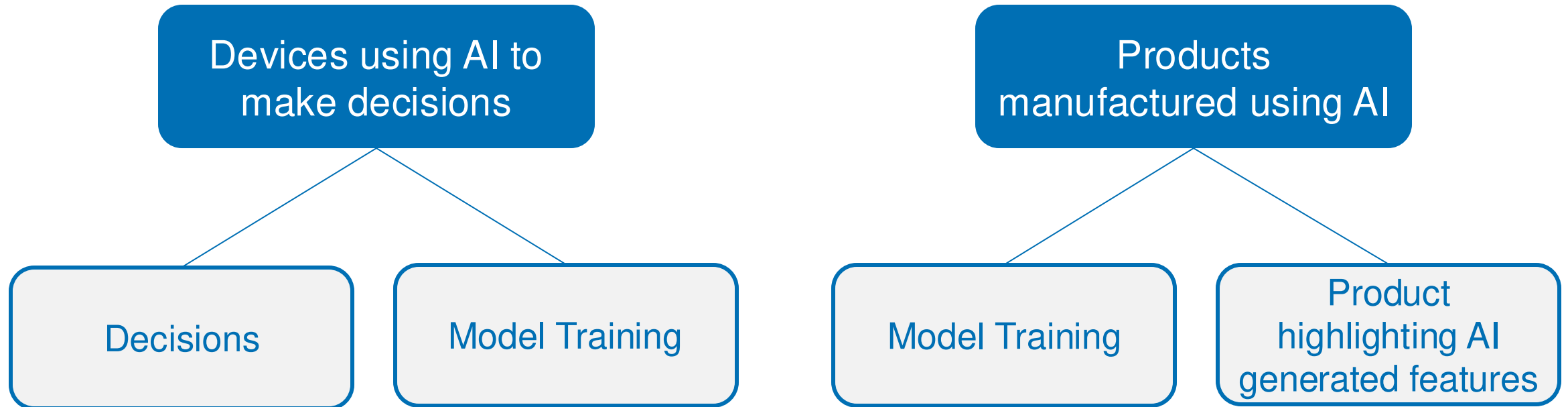


Developing an AI-focussed patent strategy

- Identify Customers and Competitors
- Can the "Infringement" be carried out by a single actor
- Focus on how infringement may take place

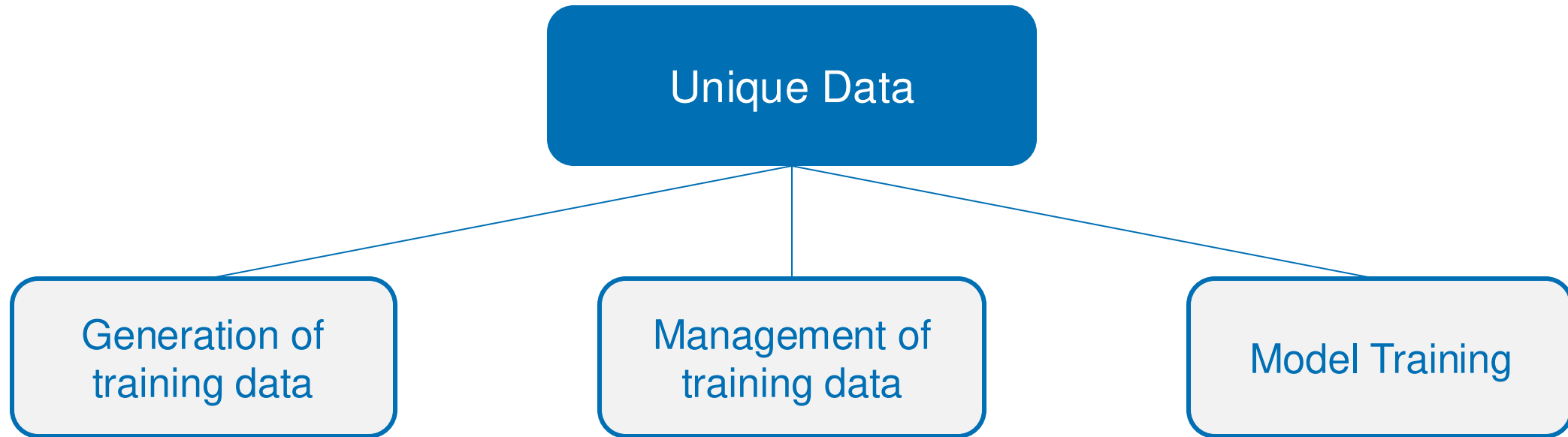


Patent Strategy = Business Strategy I





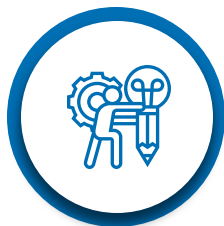
Patent Strategy = Business Strategy II





Claiming AI-Related Inventions

AI-related inventions may have three potentially patentable, aspects



Generating training data for use in training a model, such as an artificial neural network;

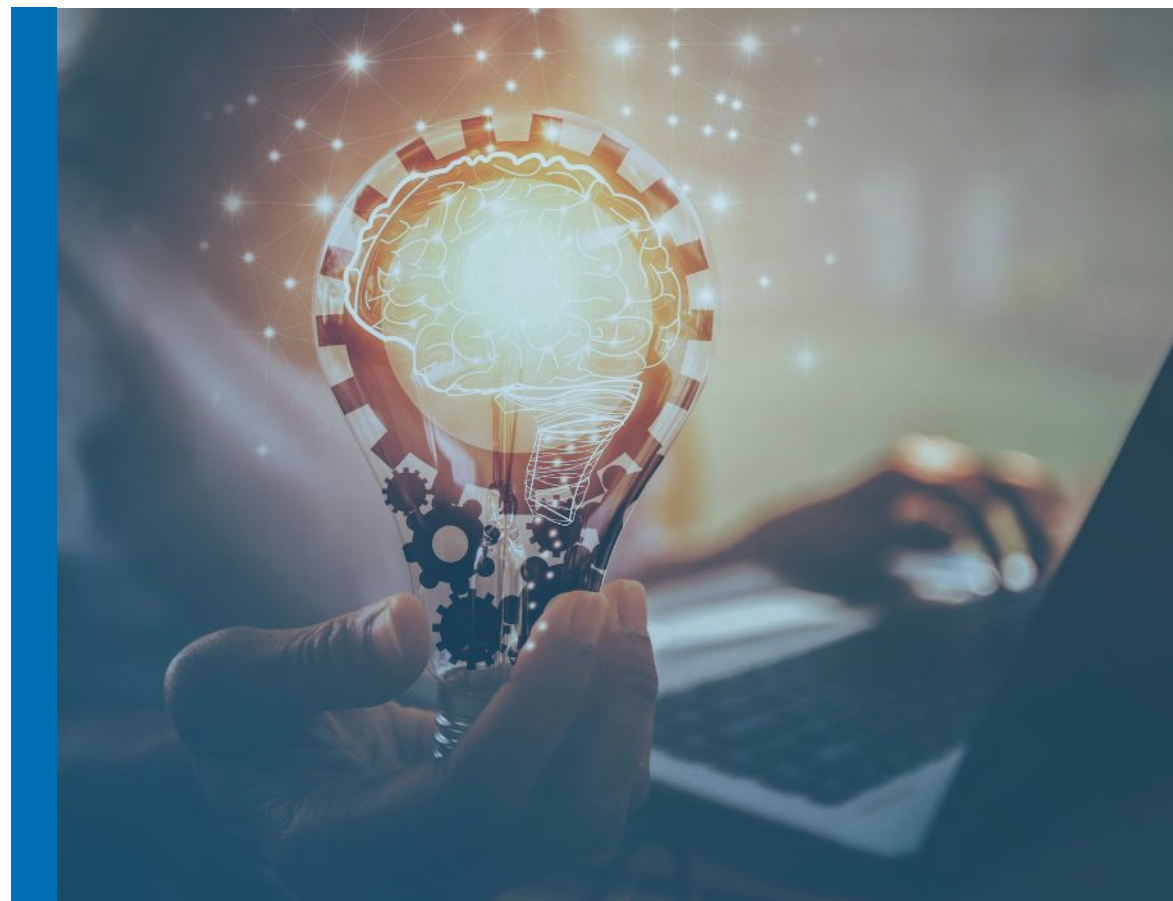


Training the model using the training data (machine learning); and



Using the trained model to analyze new data

Each of these aspects should have separate independent claims





Drafting Claims

1. Method Claims
 - without structural elements
 - protection under Art 64(2) EPC
2. Device Claims
3. Computer Program Product
 - capture stand-alone product
 - database storing elements of data
 - database for/configured to store elements of data
4. Separate claims for training and use of AI systems
5. Claims to each independent entity
 - Web server + client





Inventive Step



Not “could” the skilled person arrive at the invention but “would” they do so?



- Large number of parameters
- Non-convexity
- Human selection of training parameters

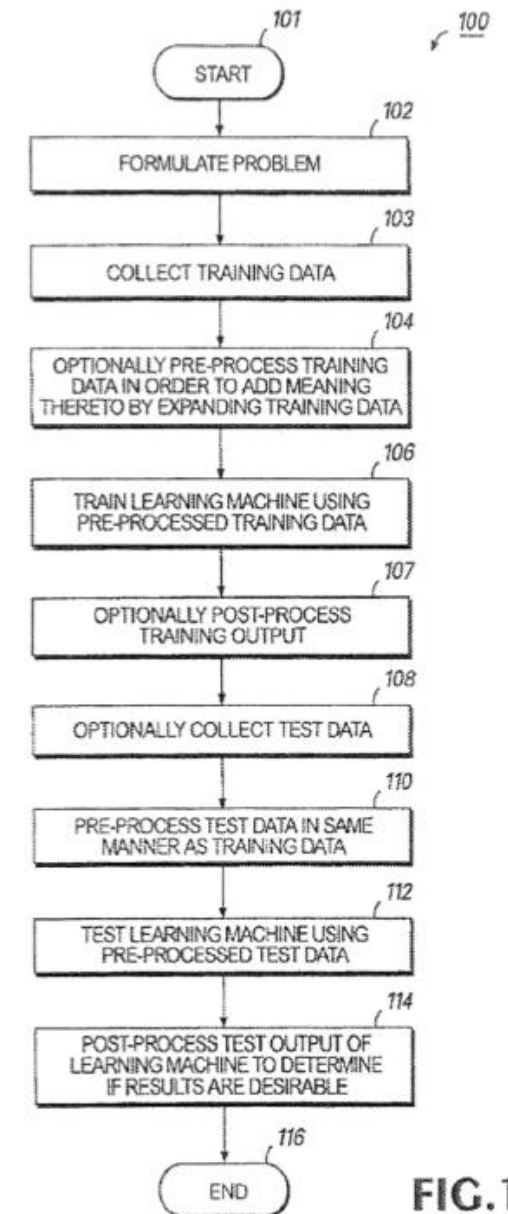


Problem-Solution approach is required
Solution must be in the technical sphere



Could a skilled person combine AI aspects to arrive at any given AI invention

- US 7,542,959
- Feature selection method using support vector machine classifier
- Claim was to a computer-implemented method for predicting patterns in biological data...comprising
- Three Prior Art documents
- Lack of Motivation to combine teachings (“could” but not “would”)
- Extensive disclosure on how data was acquired and processed





Disclosure / Enablement



Comprehensive Disclosure
Mere reference to an AI network is not sufficient (T0161/18)



- Disclosure of Training Set of Input Data
- Disclosure of Training Method
- Add structural elements
- Explain functional elements in hardware terms
- Human selection of training parameters

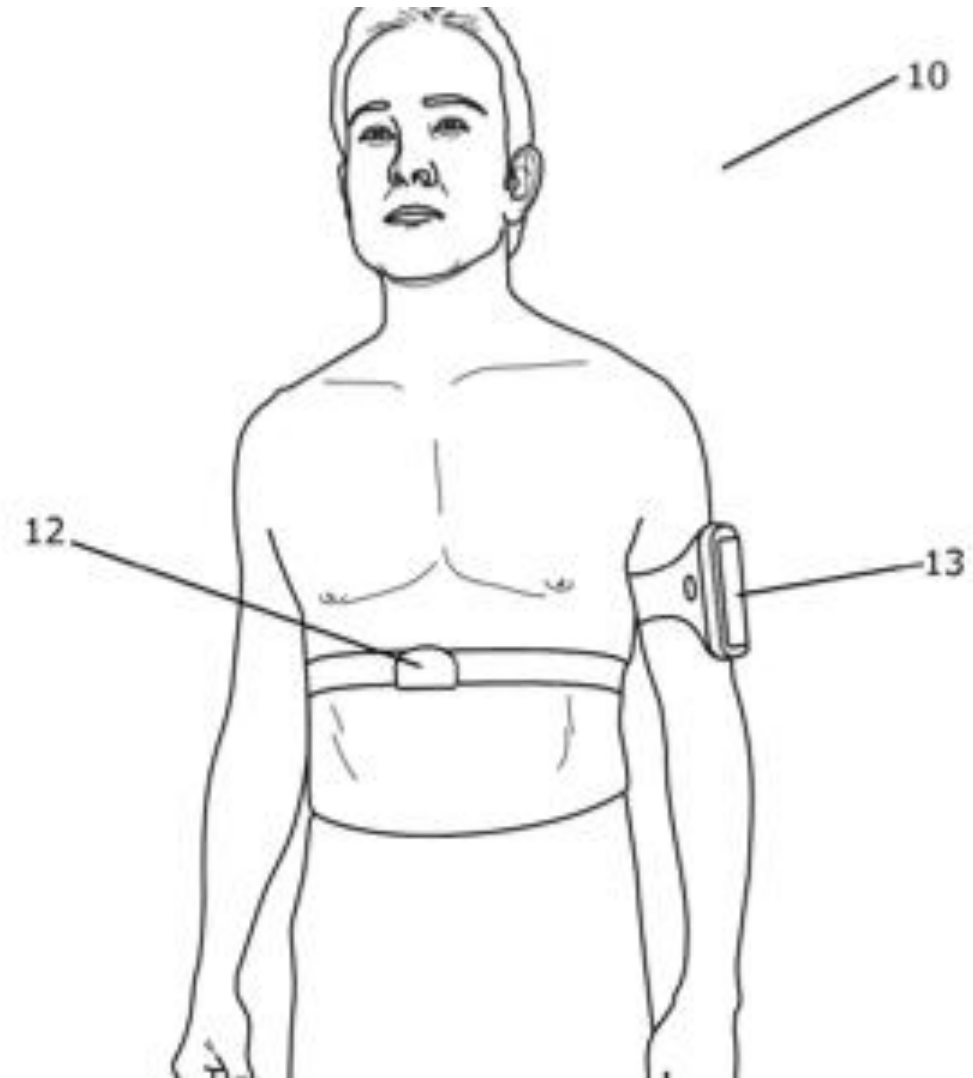


But is the invention really reproducible?



EPO: Lack of Disclosure T1079/17

- EP 2 889 853 A method for optimizing running performance for an individual
- Claims a method for optimizing running performance for an individual, the method comprising..
- No disclosure of “optimal movement pattern”
- “Artificial intelligence” -> not specific enough





AI as Inventor or Creator

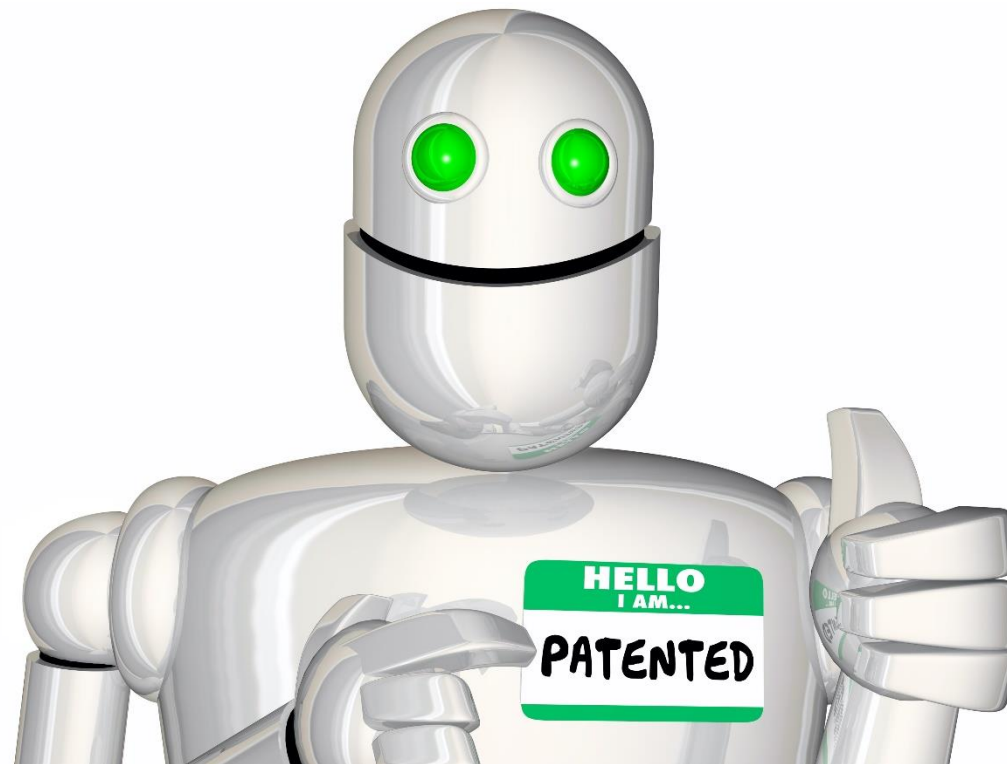


EPO US UK : No
South Africa: Yes
Germany: No – but include in description



US Copyright Office: Creator must be a human being

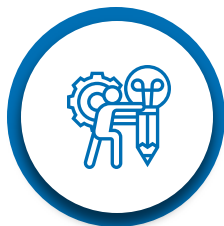
“...the inventor designated in a European patent must be a natural person ... the understanding of the term inventor as referring to a natural person appears to be an internationally applicable standard, and that various national courts have issued decisions to this effect.”



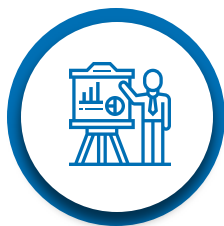


ChatGPT (Generative AI)

IP and other legal issues from massive language models



Uses copyrighted information +
non-copyrighted data



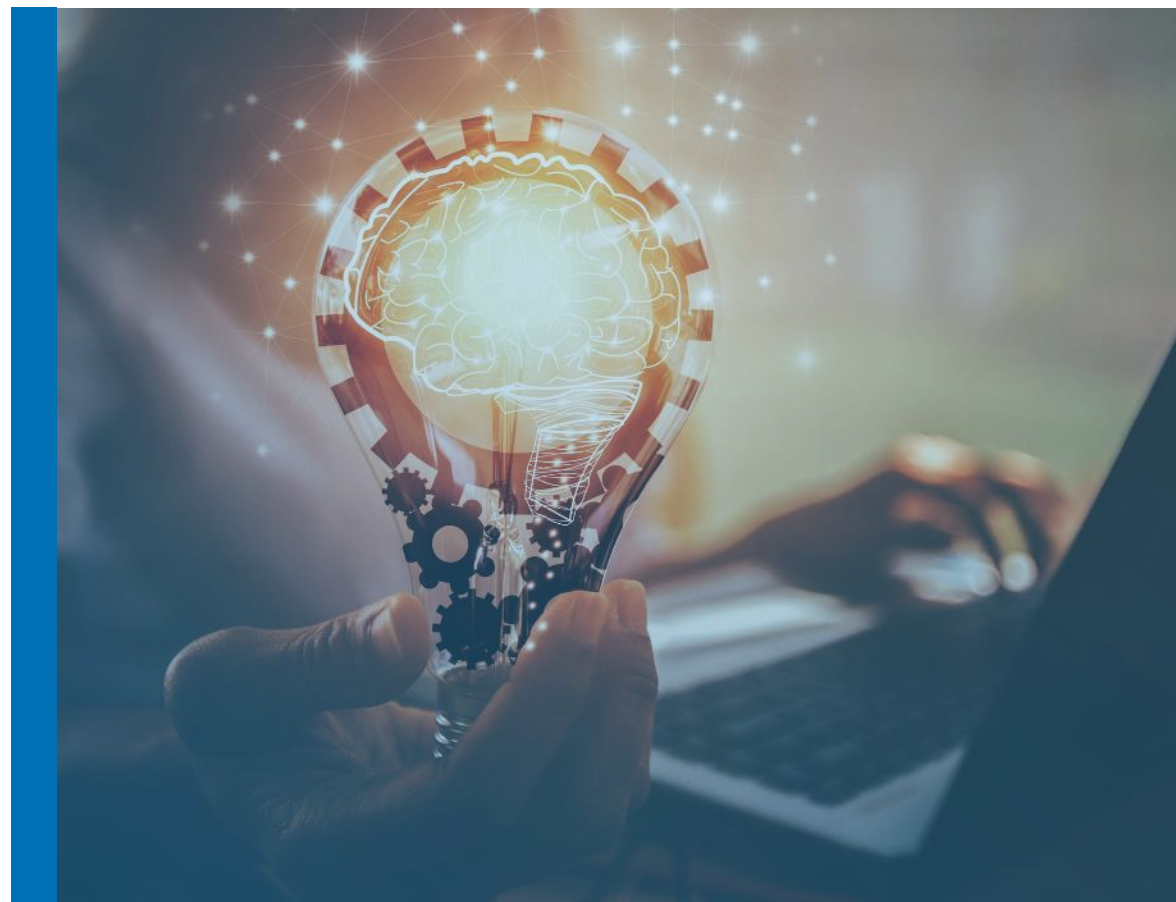
Produces useful and useless
information



Liability?



Many unanswered questions





Contact



Thanks!

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