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# Need for 'Patent Search' Modernisation and Potential for its Acceleration Leveraging AI/ML Models

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**Abstract:** *Intellectual Property Rights (IPR) have played a crucial role in promoting innovations across the globe and of late the industry has seen a steep rise in innovation activity. There is an unprecedented urgency to help global IP offices in shortening the processing time, managing bureaucratic delays, and improving operational transparency.*

*Patents are one of the most critical IP types among the 6 types where there is significant traction over the last couple of years. From ideation to the grant of the patent and its commercial use, the past patent data is required to be searched for and referred to for; 1] patentability assessment, 2] invalidity assessment, etc. Therefore, 'Search' becomes the most critical process across the patent lifecycle.*

*Literature study indicates that issues involved in patent search (when traditional search techniques are employed) usually are around 1] data processing errors, 2] errors due to language pitfalls, 3] errors due to faulty syntax, and 4] classification errors. These erroneous searches result in a large number of false positives and false negatives.*

*Artificial Intelligence (AI) and Machine Learning (ML) are leading the wave of technology development - both from a research and development perspective as well as their commercial use. Adopting these next-generation technologies presents great potential to help address the growing challenges in the patent search process.*

*AI/ML based models are suitable predominantly for multi-lingual search, handling diverse data formats, image comparisons, and keyword matching. As IP databases across countries still lack standardization, advanced technologies such as generative AI are best suited to help accelerate the patent search process.*

*Feasibility assessment of leveraging various AI/ML models to address efficiency and effectiveness issues of patent search can be performed through a 3-part framework (3i) focussing on various dimensions such as Integrate, Infer, and Intelligence.*

*AI/ML model applicability can be assessed against specific objectives of each part viz.*

*1.**Integrate** – integration with various patent databases,*

*2.**Infer** – data extraction and transformation into a standardized data set suitable for comparative analysis and*

*3.**Intelligence** – comparison, matching, and decision-making for search objectives.*

*At a global scale, further deliberations and studies on this subject are of immense value in the areas of knowledge and policy-making thereby benefiting practitioners, the academic fraternity, and society.*

**Keywords:** Intellectual Property, Patent, Patent Search, AI/ML Models, Intelligence

## REFERENCES

**[1].** Lexology, March 2020, The benefits of Artificial Intelligence in the field of IP, Link Stephanie Crawford, Article - How to Do a Patent Search
**[2].** Ayush Verma, July 2020, Artificial intelligence: Simplifying the process of prior art patent search, Link
**[3].** Tyron Stading (Chief Data Officer at CPA Global), Blog - The Role of Artificial Intelligence in Intellectual Property, 2017
**[4].** GreyB Services, 4 Types of Patent Searches: Everything You Need to Know
**[5].** Leonidas Aristodemou, Et. Al., A literature review on artificial intelligence, machine learning and deep

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learning methods for analyzing intellectual property (IP) data, 2018

**[6].** Brinda K. Varma, Treatise on Process Metallurgy: Industrial Processes, 2014, Link OECD, Patents, and Innovations: Trends and Policy Challenges, 2004, Link UpCounsel, Patent Search Techniques: Everything You Need to Know

**[7].** Mahesh Maan, Article - Can We Together Solve the Major Challenges in AI Patent Search?, 2021, Link

**[8].** David John, June 2015, Linked-in article – 'Major, but common Patent Searching Challenges', Link Poulomi Sen, July 2020, Artificial intelligence: Simplifying the process of prior art patent search, Link Benjamin Hanrahan, Esq., NA, How to Perform a Patent Search

**[9].** TechFunnel Contributors, Nov 2019, 3 Emerging Technology Research & Development (R&D) Trends, Link

**[10].** Ritesh Mathur, Linkedin Article - Challenges in Patent Analytics, 2019

**[11].** Makoto Iwayama Et. Al. , Chapter 4 - Challenges in Patent Information Retrieval, 2021, Link Michael Cooney, Oct 2018, Gartner: Top 10 2019 tech trends you should know

**[12].** Muhammad Imran, January 2022, Machine Learning Models Explained: Overview, Types & much more!

**[13].** Sébastien Ragot et al., IP lifecycle management using blockchain and machine learning: Application to 3D printing data files, World Patent Information Vol 62