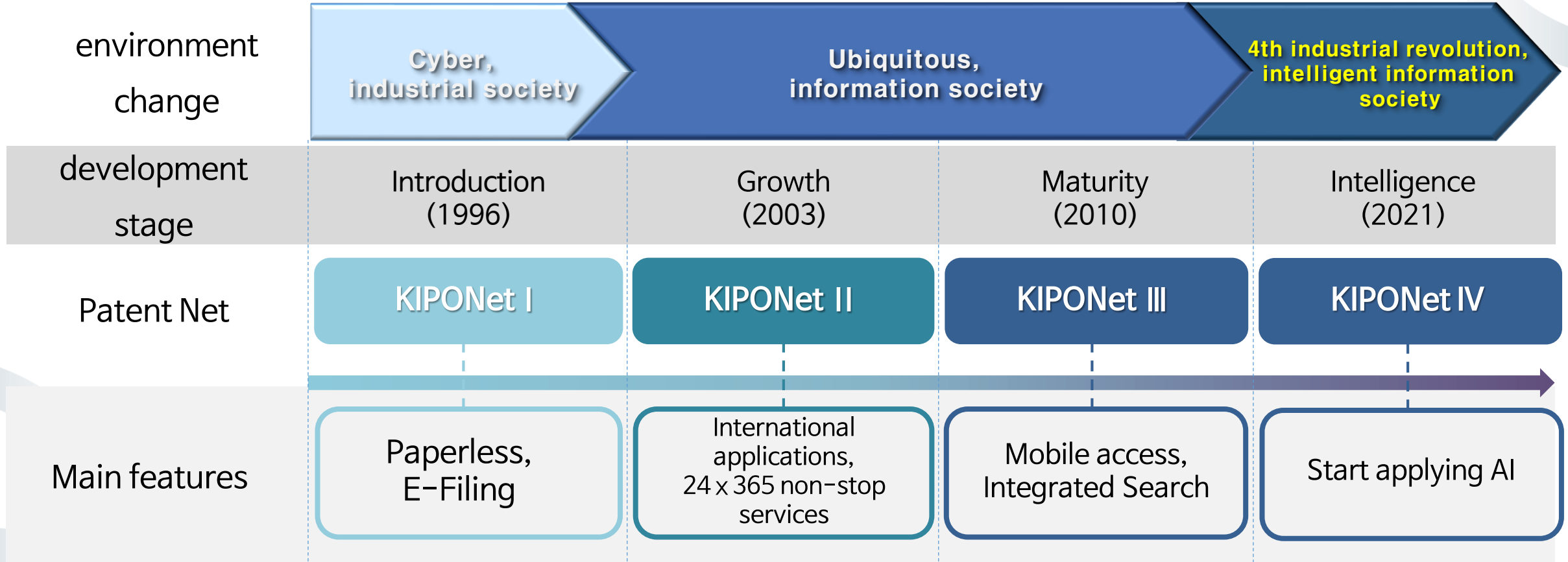# Enhancing IP Office Decision-Making with AI-Powered Analytics

Intellectual Property Information System Division | WIPO-ASEAN IP Strategic Forum | 31 January, 2024

Korean Intellectual Property Office

KIPO's Patent Administration Informatization

History

environment change	Cyber, industrial society	Ubiquitous, information society		4th industrial revolution, intelligent information society
development stage	Introduction (1996)	Growth (2003)	Maturity (2010)	Intelligence (2021)
Patent Net	KIPONet I	KIPONet II	KIPONet III	KIPONet IV
Main features	Paperless, E-Filing	International applications, 24 x 365 non-stop services	Mobile access, Integrated Search	Start applying AI

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AI Development for KIPONet

AI Development for KIPO-NET('20~'23)

	Year 2020	Year 2021	Year 2022	Year 2023
AI SEARCH	▪ AI Figurative Marks search	▪ AI Designs search	▪ AI Patents search	▪ AI Trademark Names search
AI CLASSIFICATION			▪ AI Patents, Figurative Marks classification	
AI CHATBOT		▪ AI Chatbot for Counselors	▪ AI Chatbot for Customers	
Other	▪ English-Korean AI translation		▪ AI Enterprise Management System	▪ Patents based Language Model

"KIPO-LG AI Research" MOU & Cooperation
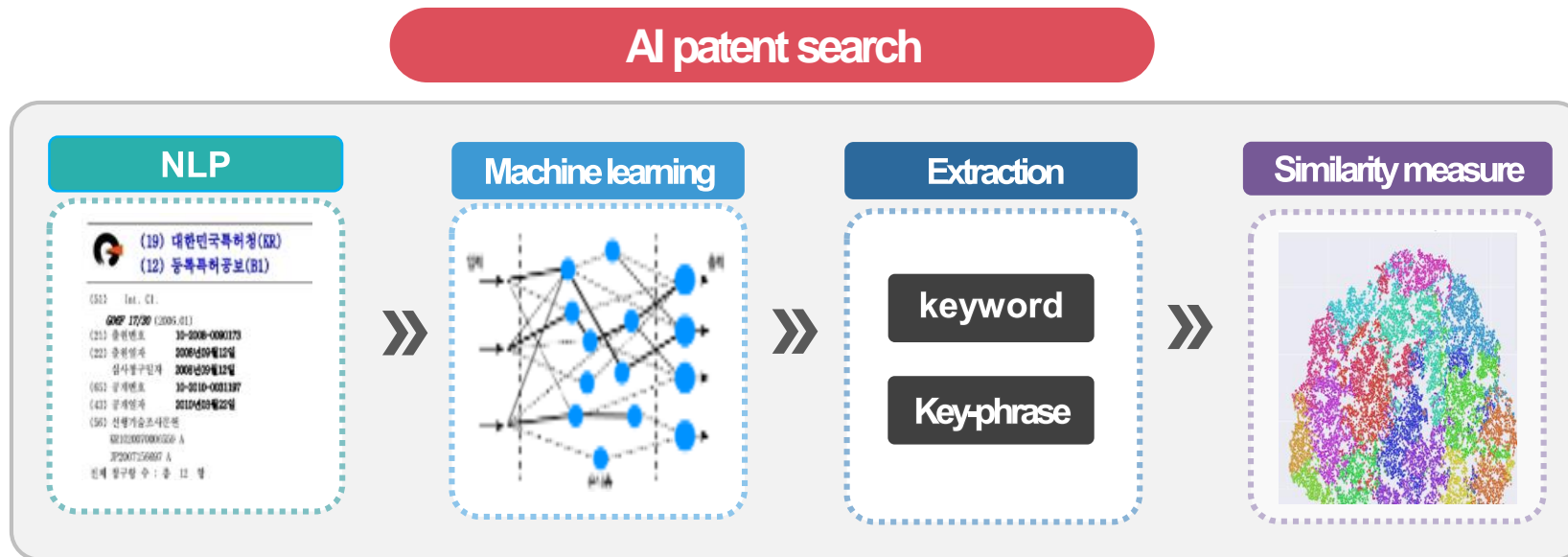
KIPO-LG AI Research MOU	2023 Final Conference

# *Patent Search System based on Artificial Intelligence*

Overview

- AI-based Patent Search System development was completed in 2021.

- The system was launched for use in examinations in 2022.

AI Patent Search Service

- Query(The Document Number) → Natural Language Processing → Machine Learning

- Keyword & Key-phrase Extraction → Similarity Measurement

- Retrieving the Closest Documents and Ranking relevant Documents
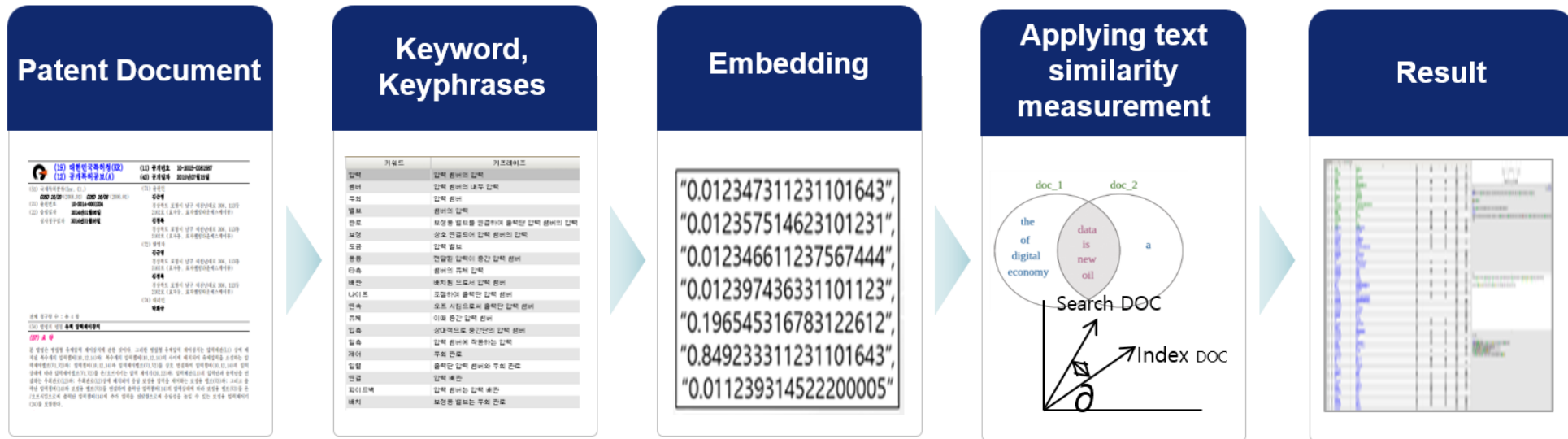
AI Patent Search Service

- Efforts to improve recall, which is a key performance indicator, are underway.

  ・ Adjust field weights by technical discipline.

  ・Improved Keyphrase Filters.

  ・Improved ranking algorithm.

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Next Steps

- Proof of Concept. (2023~)

    ・ Research on Expanding the Scope of AI Automated Search in Progress.

    ・ We plan to provide services for English Patent documents.

- Reviewing the Application of LLM(Large Language Models).

Patent Classification Recommendation System based on Artificial Intelligence

Overview of AI Patent Classification

- **AI patent classification model** performs **patent classification (CPC)** and recommends to the **patent classifier**

- Recommends 7 candidate classification codes at the main group (e.g., G06Q 30) level

- **(Classification accuracy)** 84% for TOP 5

  (concordance rate between main classification code determined by the classifier and the candidate classification codes recommended by AI)
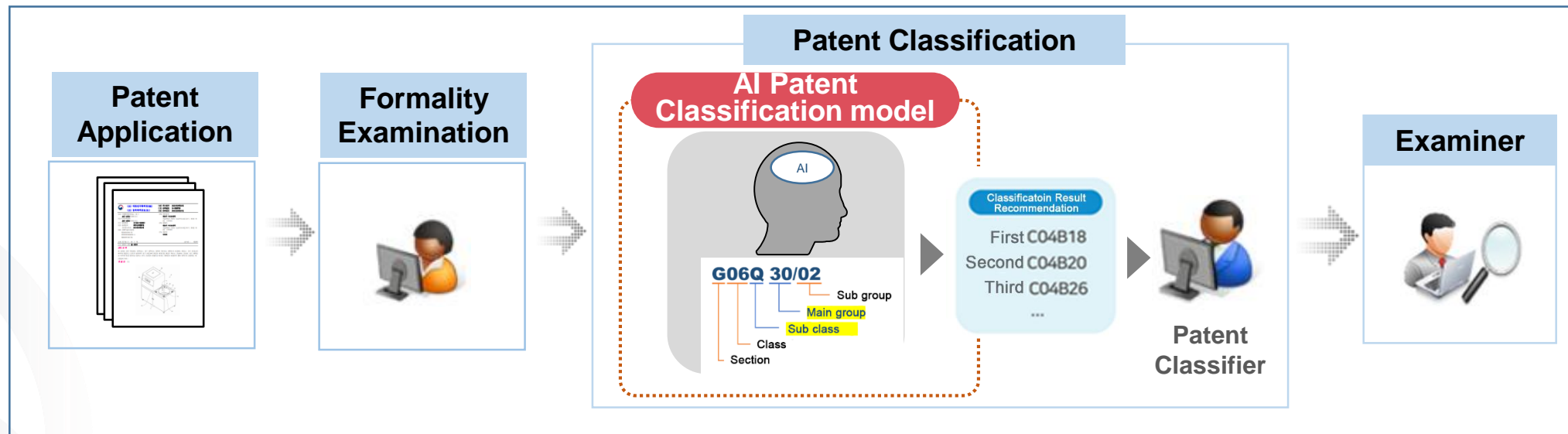
Future Challenges

- **Enhancement of patent classification level** (up to subgroup)

  ➢ Classify into subgroups **Only for technology fields with sufficient training data**

  ➢ **Expand training data for subgroups with insufficient training data**: (e.g.) translation data of international patent publication, non-patent publicaiotn(research paper)

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Thank you!

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