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# Trends in patenting activity related to AI

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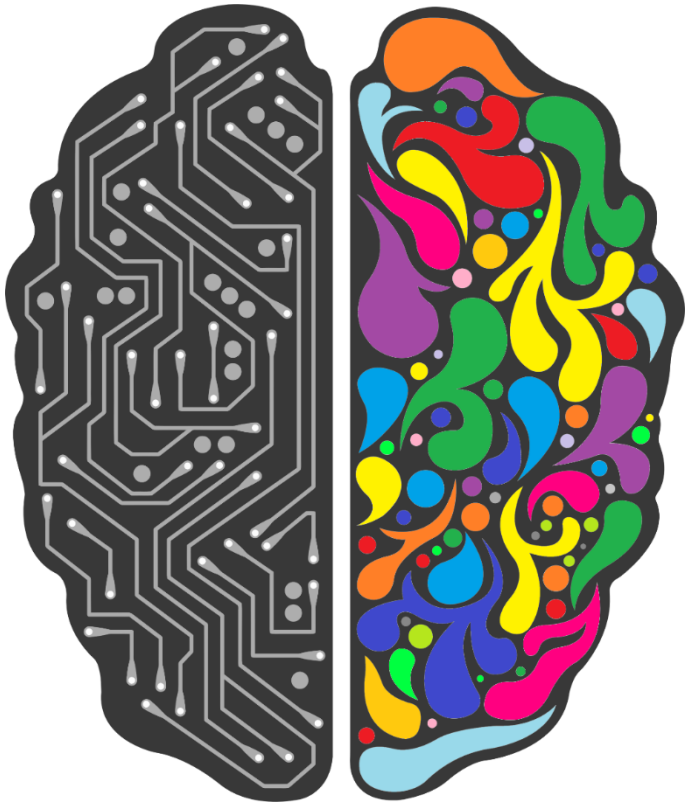
IP and Frontier Technologies Division

# AI at WIPO – an overview



- Empirical analysis
- AI in IP administration
  - at WIPO
  - at IPOs around the world
- Clearing House
- IP policy

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# Empirical analysis

www.wipo.int/tech_trends/

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# Follow up reports

## OECD

Baruffaldi, S., et al. (2020), "Identifying and measuring developments in artificial intelligence: Making the impossible possible", OECD Science, Technology and Industry Working Papers, No. 2020/05, OECD Publishing, Paris, https://doi.org/10.1787/5f65ff7e-en

## UKIPO

UKIPO (2019). Artificial intelligence: a worldwide overview of AI patents. https://www.gov.uk/government/publications/artificial-intelligence-a-worldwide-overview-of-ai-patents

## IP Australia

IP Australia (2019). Machine Learning Innovation: A Patent Analytics Report. https://www.ipaustralia.gov.au/tools-resources/publications-reports/patent-analytics-report-machine-learning-innovation

## CIPO

CIPO (2020). Processing Artificial Intelligence: Highlighting the Canadian Patent Landscape https://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/h_wr04755.html

## USPTO

USPTO (2020). Inventing AI: Tracing the diffusion of artificial intelligence with U.S. patents https://www.uspto.gov/about-us/news-updates/new-benchmark-uspto-study-finds-artificial-intelligence-us-patents-rose-more

## JPO

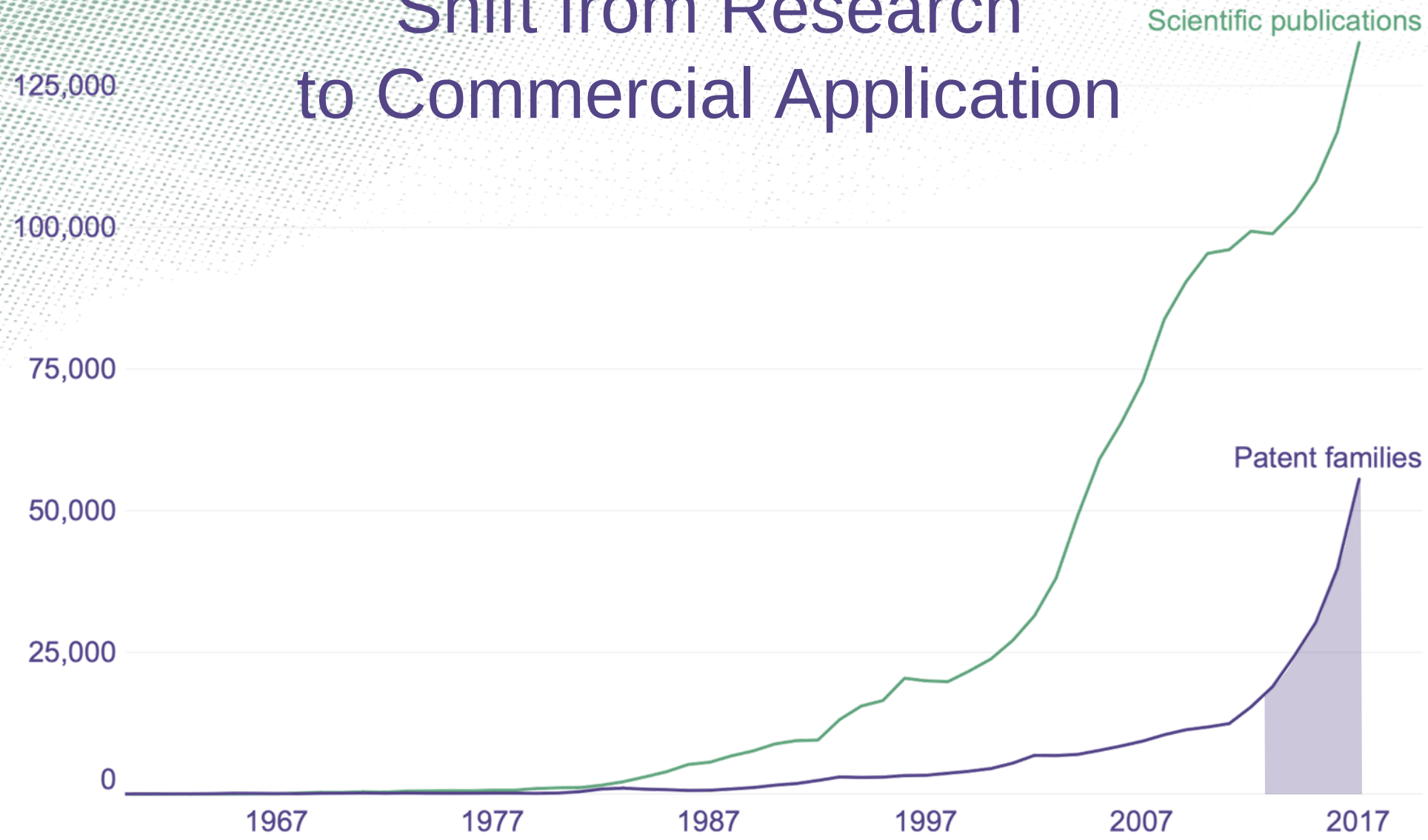
JPO (2021). Recent Trends in AI-related Inventions https://www.jpo.go.jp/e/system/patent/gaiyo/ai/ai_shutsugan_chosa.html

# Overall results

340,000 patent families

1.6 million scientific publications

# Shift from Research to Commercial Application

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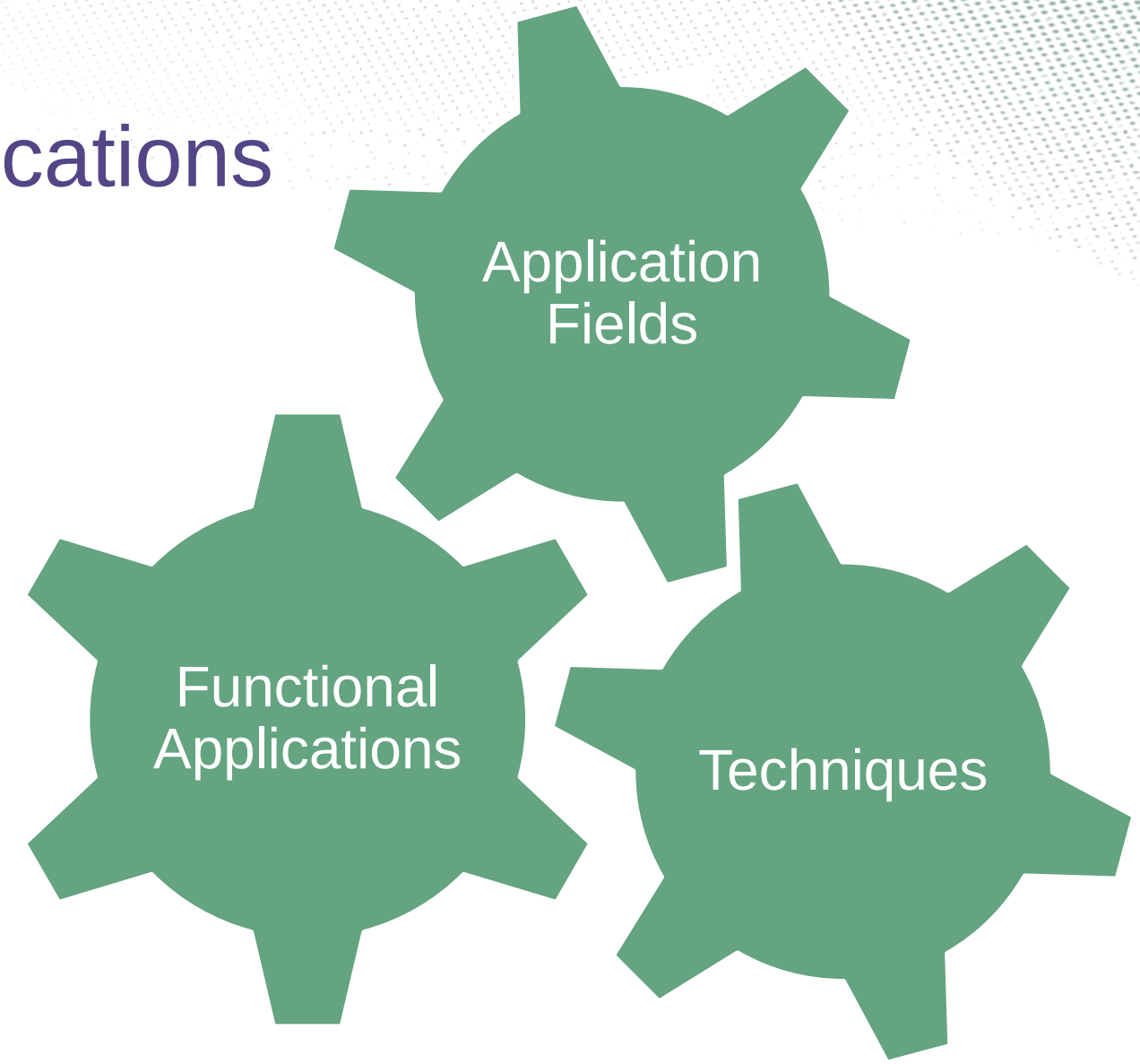
# Types of AI patent applications

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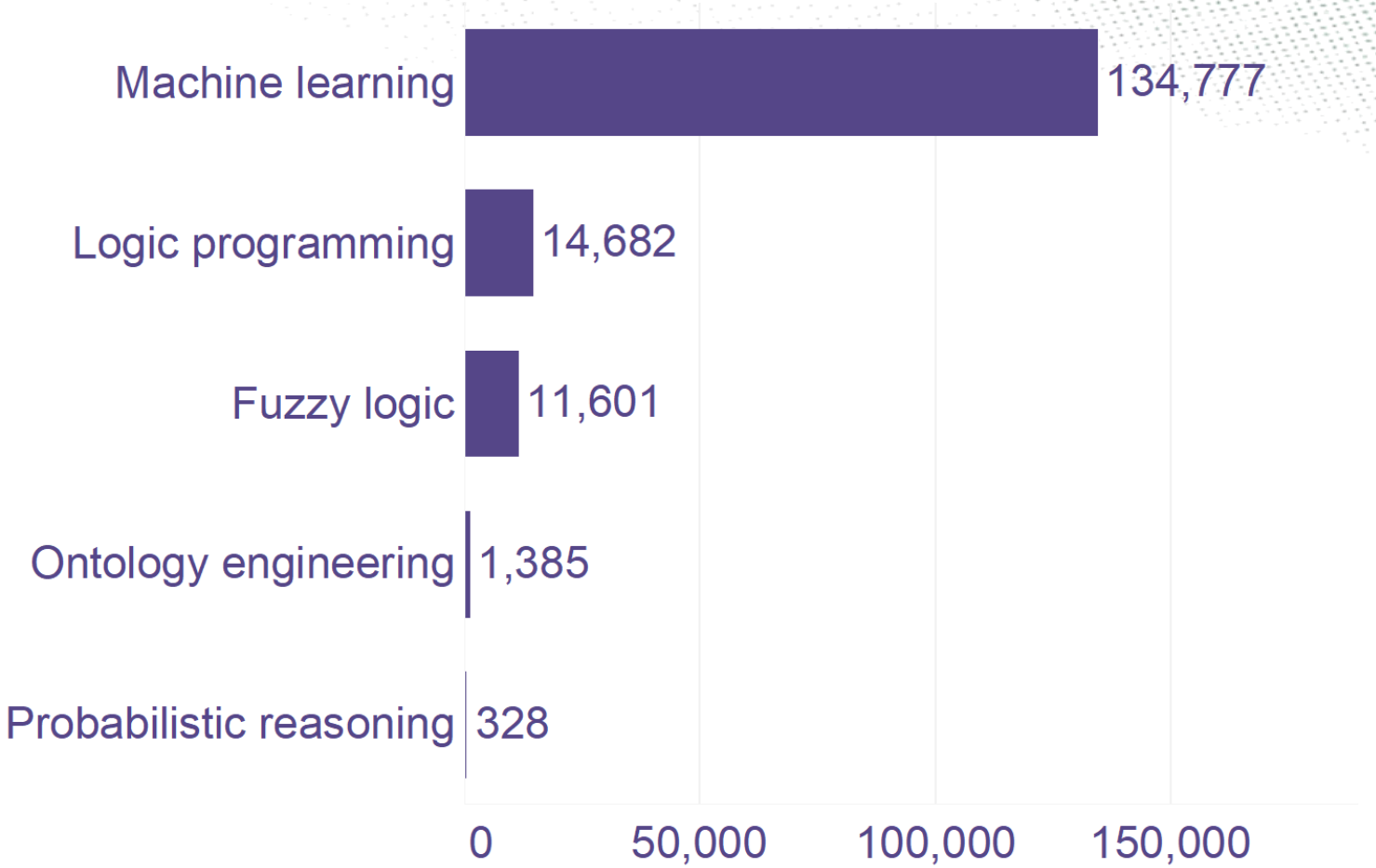
# AI techniques

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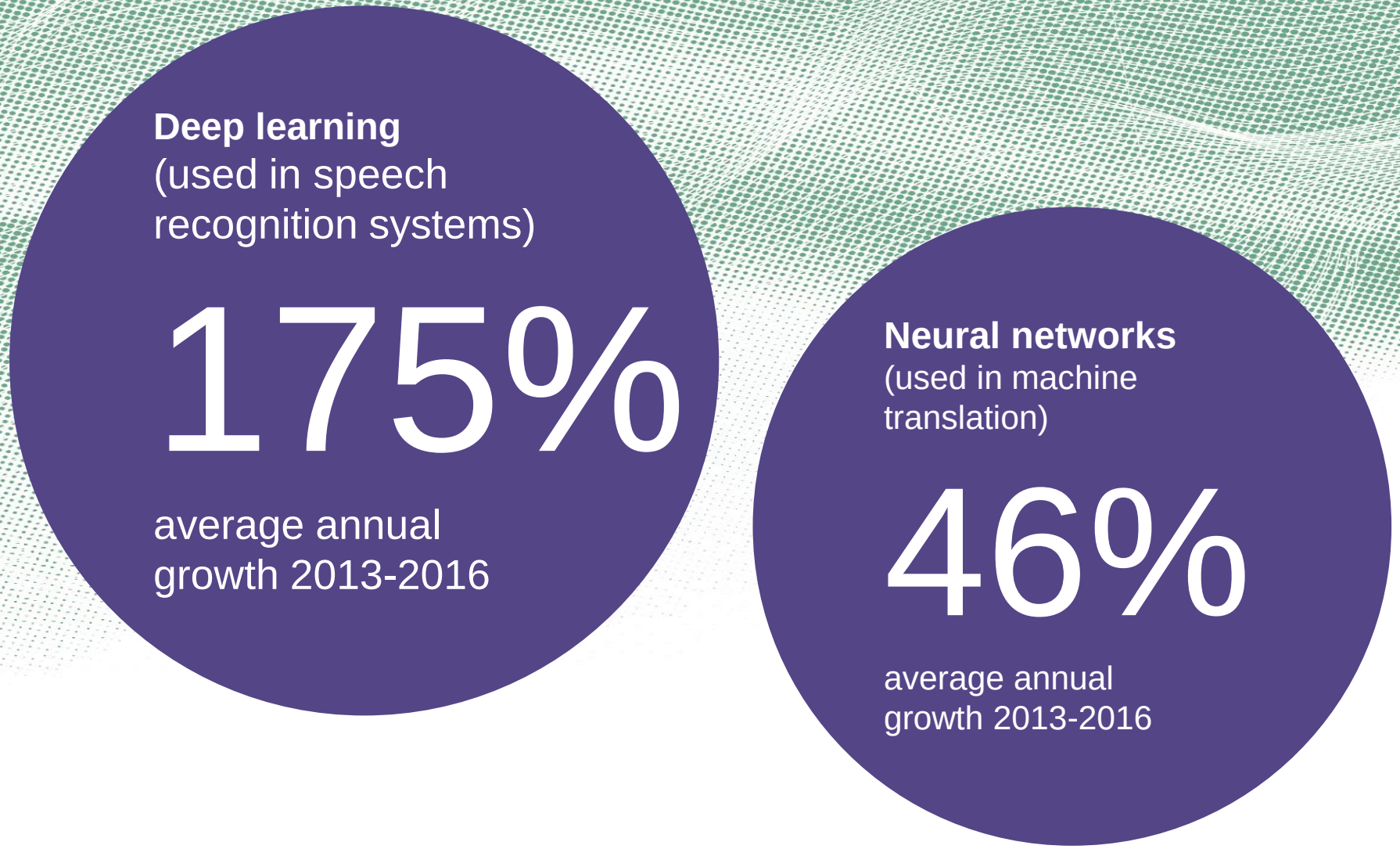
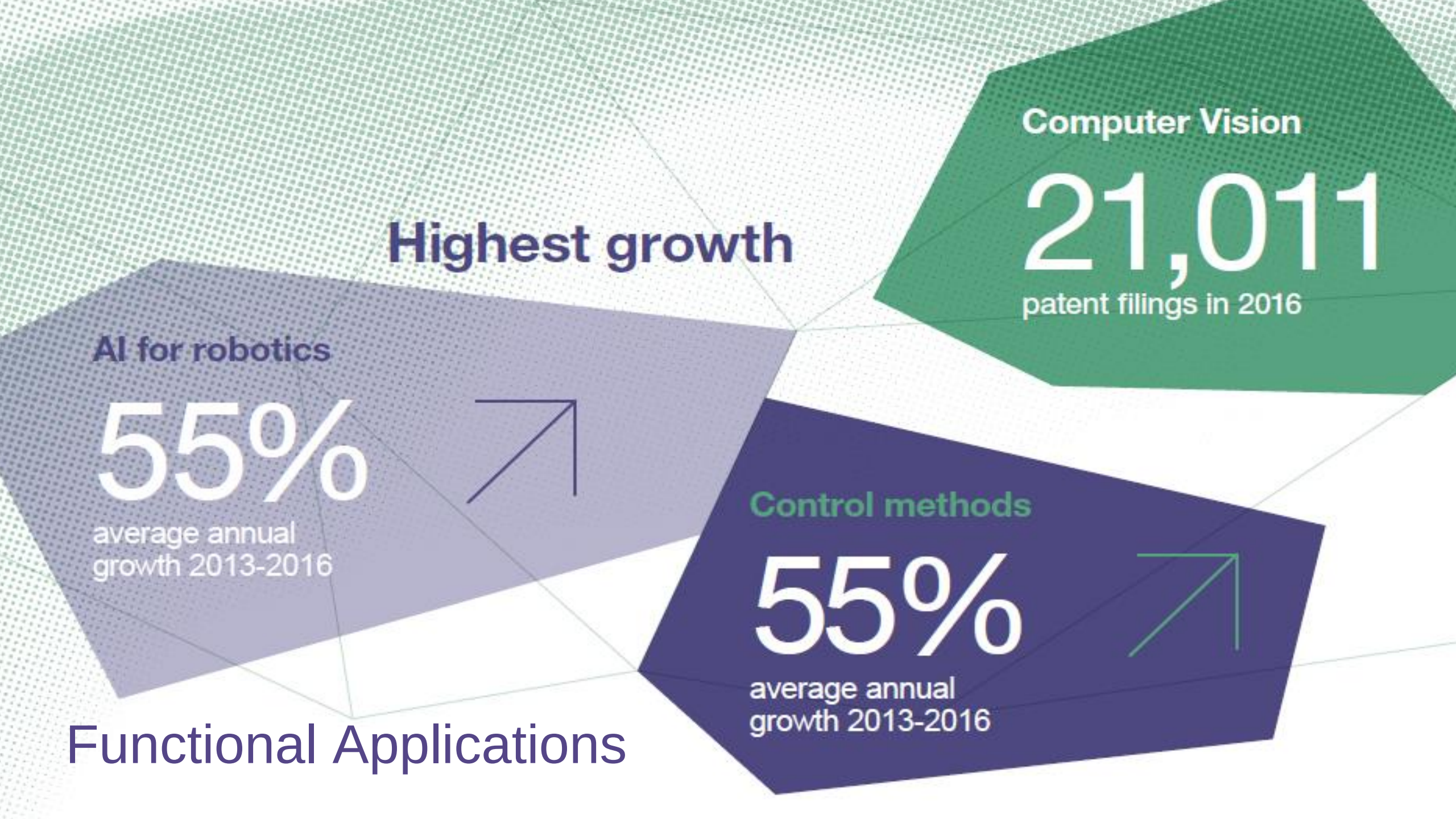



# Techniques - Machine learning

# Functional Applications



# Application Fields

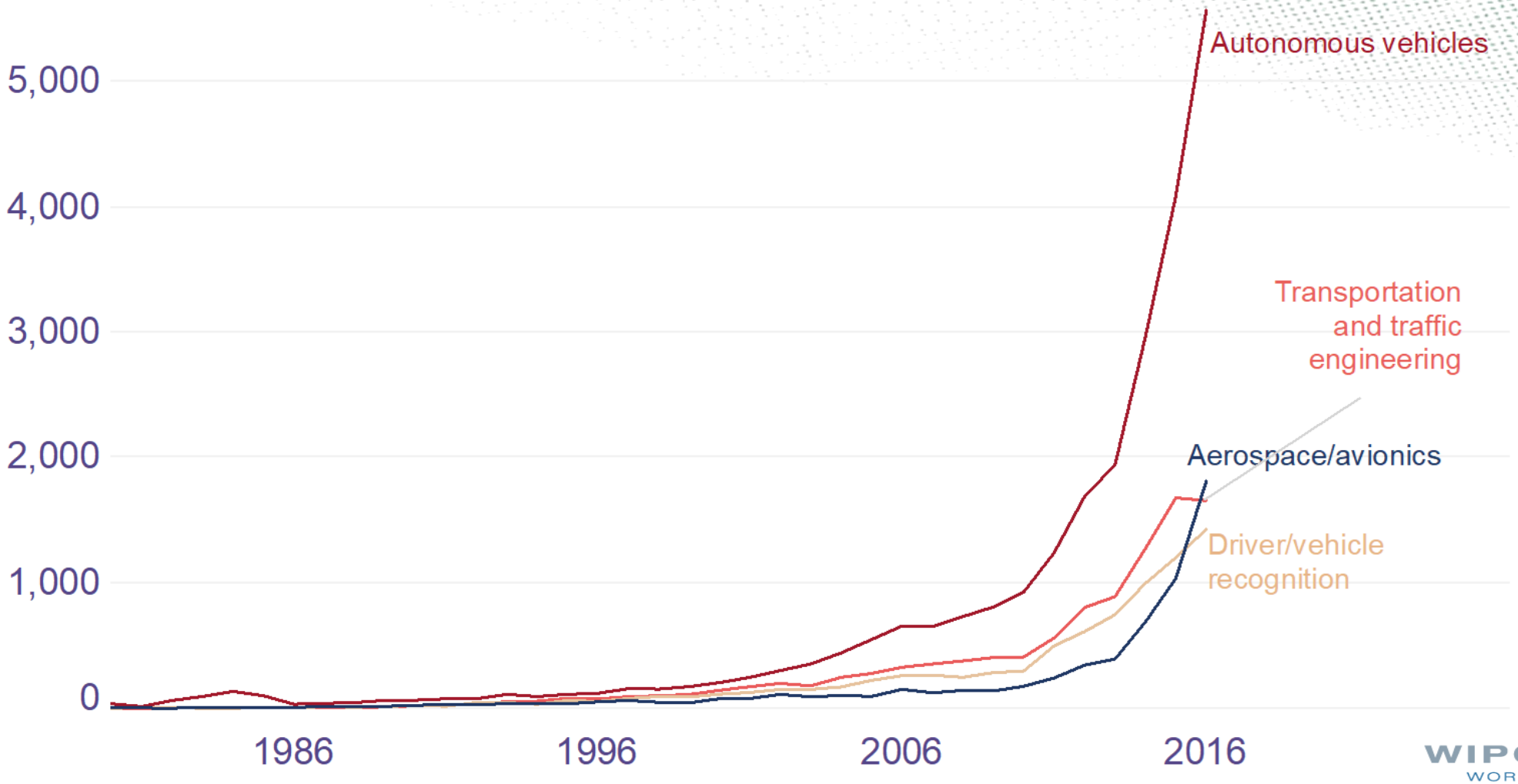
15%
Transportation

15%
Telecommunications

12%
Life and medical sciences

11%
Personal devices,
computing and HCI

# Transportation over time

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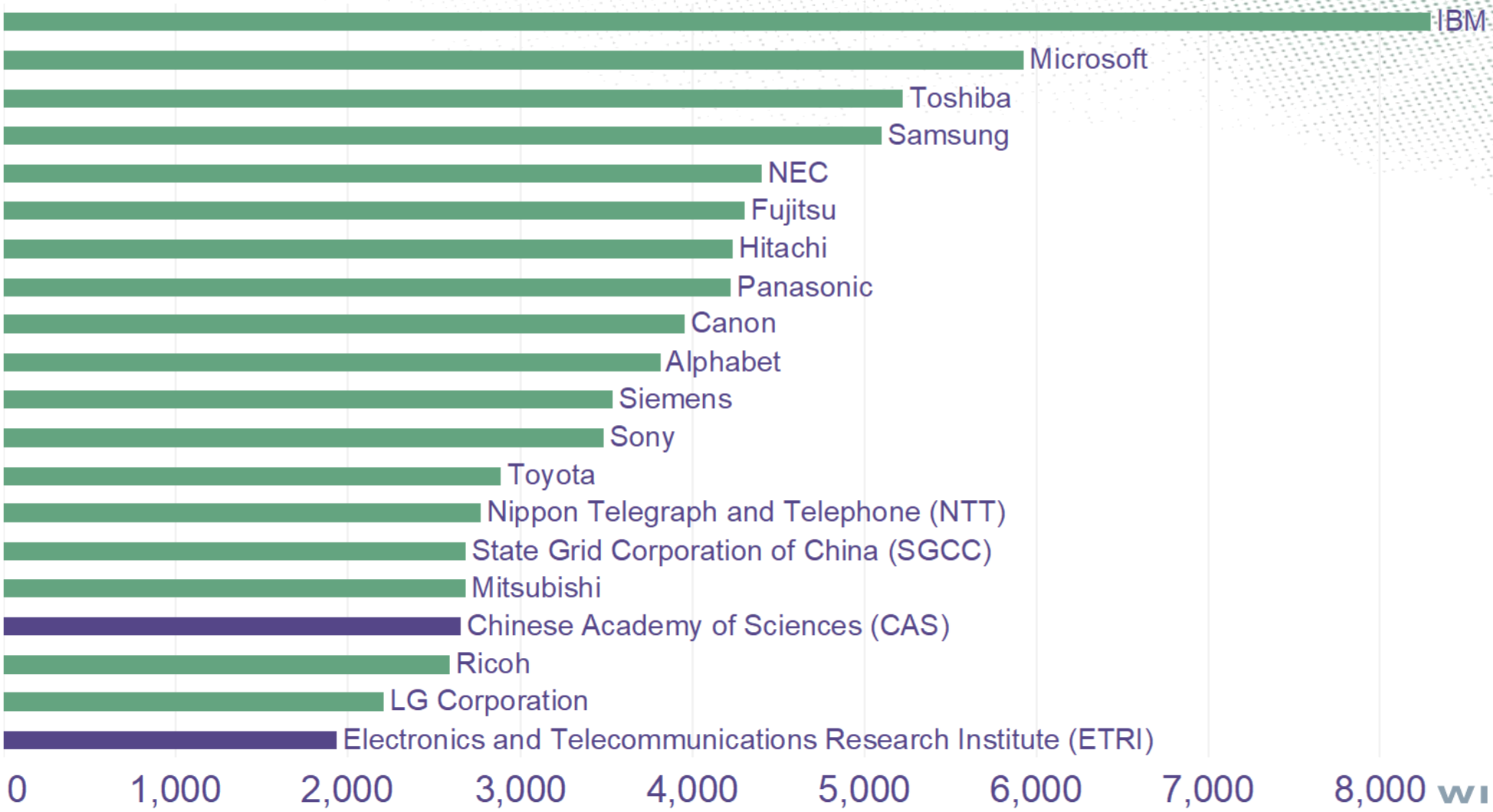
# Key players

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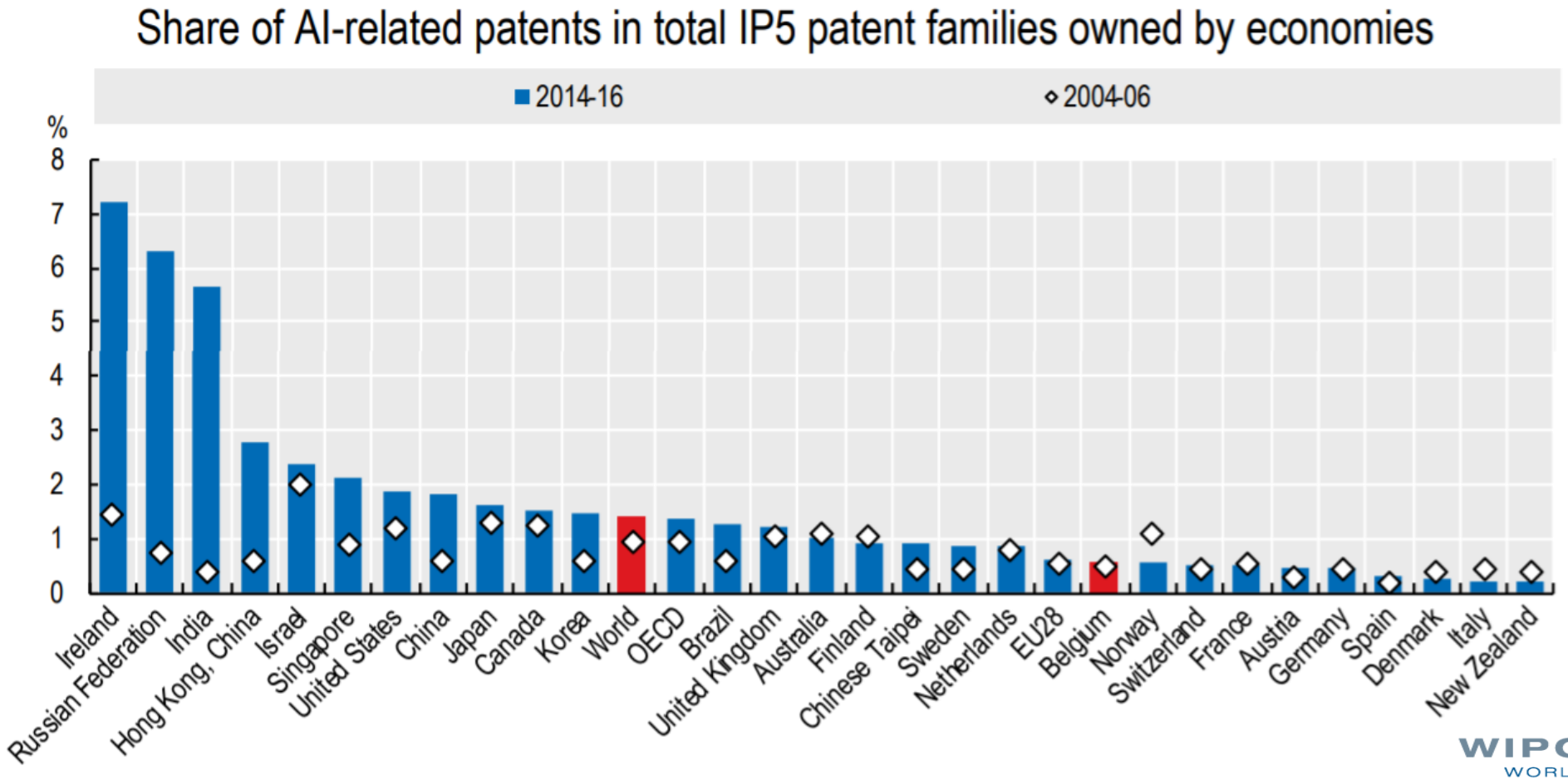
# OECD – Invention origin

## Figure 5.7. AI-related inventions in total patents, by economies, 2004-06 and 2014-06

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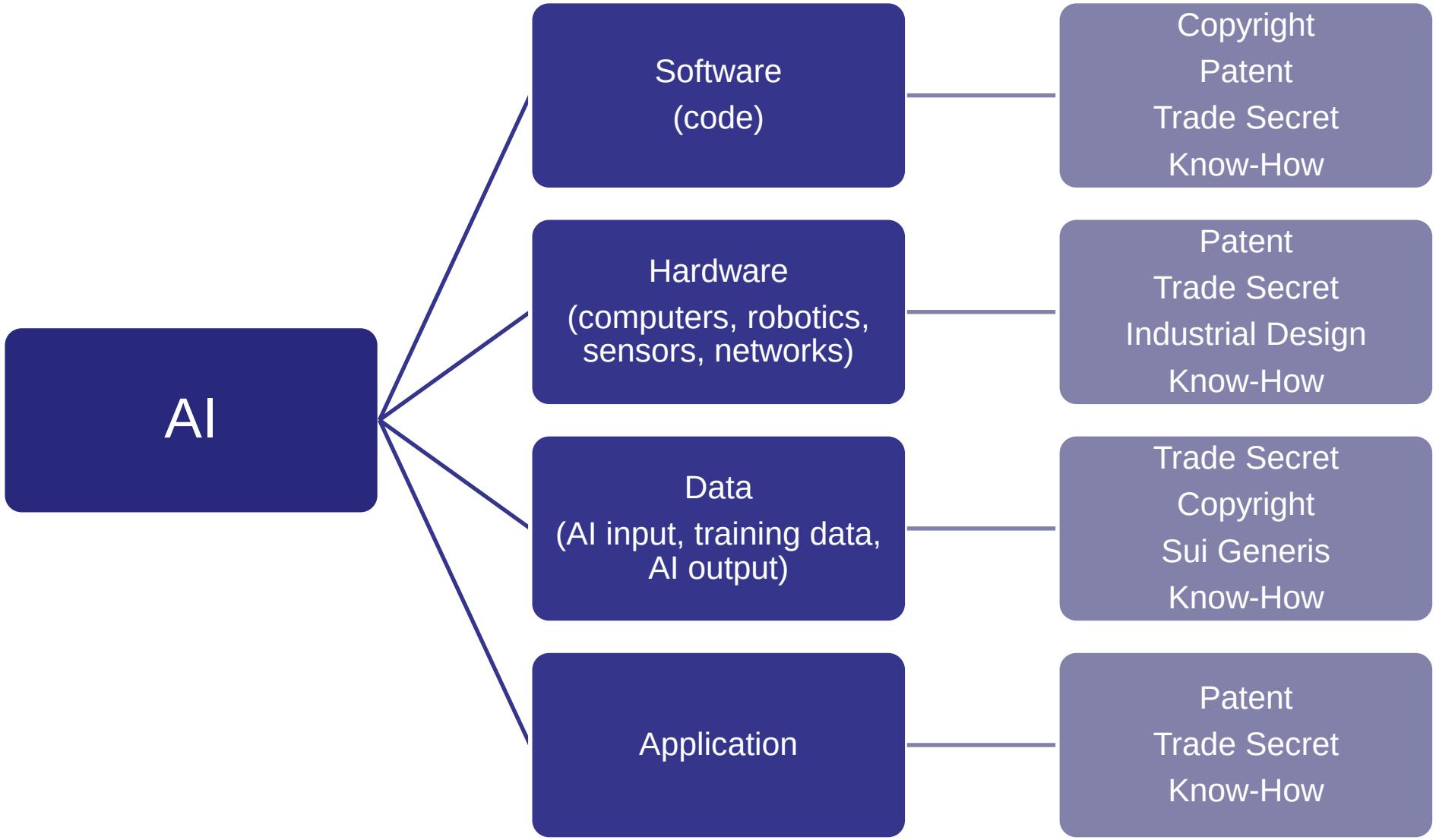
# So what?

- Policy considerations
  - Employment
  - Security
  - Data privacy
  - Data ownership
  - IP ownership
  - Ethics
  - Bias
  - …

# AI and IP Policy



# WIPO Conversation on IP and ~~Artificial Intelligence~~ Frontier Technologies

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