

# Artificial intelligence is heating up the global economy

29.06.2022 2 min read

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Artificial intelligence or AI is a concept that encompasses machines and systems capable of simulating human behavior in terms of learning and creation. According to the World Intellectual Property Organisation (WIPO), AI has three dimensions: (i) AI techniques, (ii) functional applications, and (iii) fields of application. AI techniques cover such things as logic programming and machine learning. Functional applications refer to natural language processing, computer vision, and methods of control, for example. Fields of application include transportation, agriculture, telecommunications, and medical and biological sciences, along with many other areas.

AI's applicability, both current and potential, in many different technological fields and economic sectors makes it a major driver of innovation, as can be seen from significant growth in the number of filings of AI-related patent applications in Brazil and around the world.

In a study published in April 2022, the INPI – *Instituto Nacional de Propriedade Industrial* (Brazilian PTO), the Ministry of the Economy and the Brazilian Industrial Development Agency gathered data on the main AI applications in the machinery and equipment sector, where AI has substantial impact. Since 2009 there has been an exponential growth in the number of AI-related patent applications filed by non-residents, while applications filed by Brazilians have increased significantly since 2016.

According to the report *Radar Tecnológico* published by the INPI, 50% of AI patent applications relate to fields of application, 22% relate to AI techniques, and 28% to functional applications, and the main applicants in Brazil are Microsoft, Qualcomm, Philips, Nissan, Scania and Boeing. The United States lead the rank of countries with the most patent applications filed at the INPI, with a volume four times greater than Brazil, which holds the second place.

The analysis of the main applicants shows a strong presence of the transportation sector (Nissan, Scania and Boeing), but also of companies in the technological area (Microsoft), telecommunications (Qualcomm) and health (Philips).

The importance of protecting developments involving AI is notorious. In fact, a tool of such disruptive innovative power as AI is expected to generate debate over its implications for intellectual property laws and policies both in Brazil and around the world.

The most pressing issues that have emerged to date involve (i) the need to redefine the process for examining and granting patent applications using AI and (ii) the concept of inventorship, when the invention was entirely created by AI.

The fact is that most countries did not foresee that AI would be able to create

and innovate, and their patent legislation reflects that. In any case, there is a high expectation that effective protection will be grant and implemented to developments involving AI, either as a tool or as an inventor. After all, AI-related technologies are driving collaborations, alliances, and acquisitions in a variety of economic sectors, being essential, from the legal perspective, to follow the technological and creative evolution in order to serve the fundamental purpose of the intellectual property system, including patents, which is to support progress among nations and to benefit the world's population.

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