Summary of "Inventing AI"
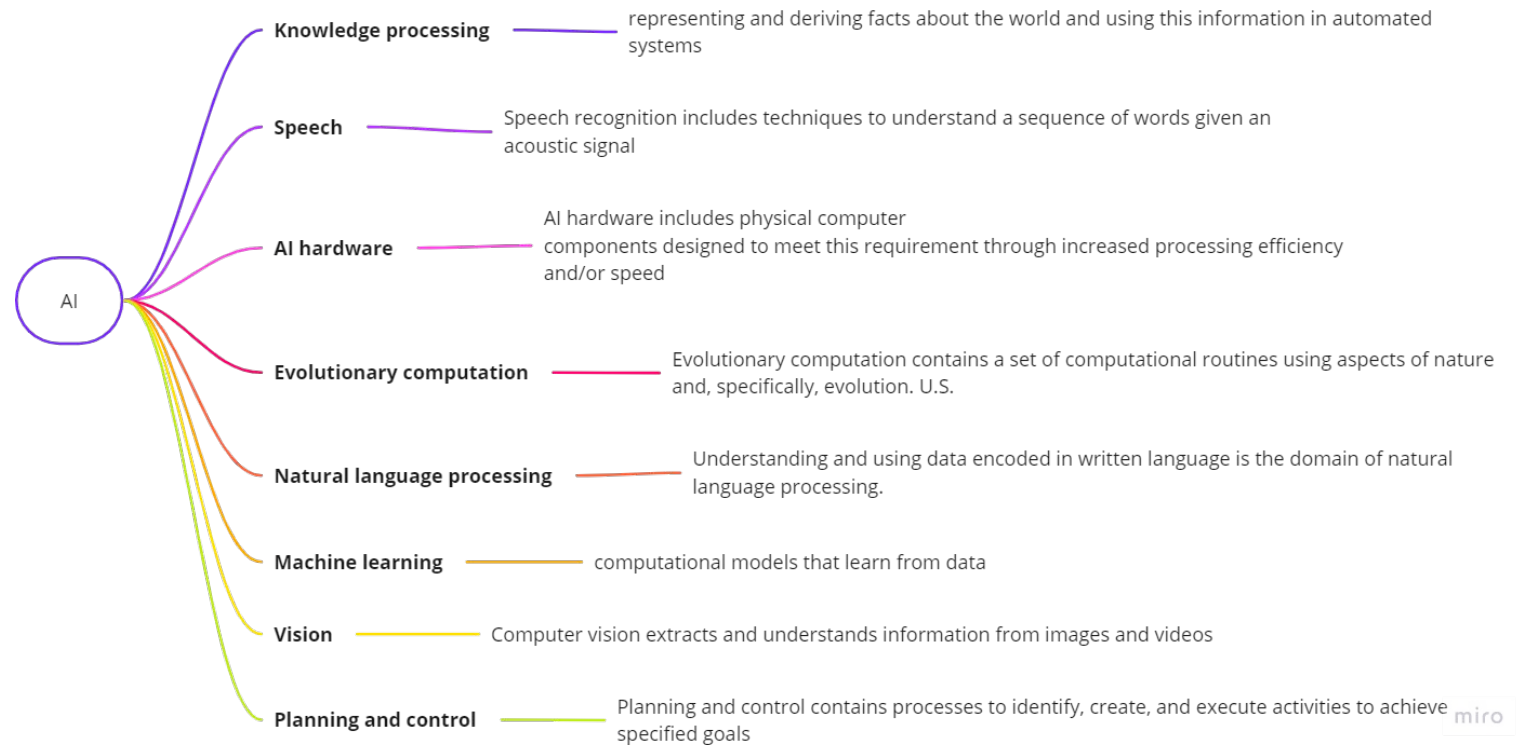
What is AI

- Mirror Board: https://miro.com/app/board/uXjVPI_JcBI=/

Figure 1: AI component technologies used in the patent landscape

Planning/control — Knowledge processing — Speech — AI hardware — Evolutionary computation — Natural language processing — Machine learning — Vision

Artificial Intelligence AI

AI

Knowledge processing — representing and deriving facts about the world and using this information in automated systems

Speech — Speech recognition includes techniques to understand a sequence of words given an acoustic signal

AI hardware — AI hardware includes physical computer components designed to meet this requirement through increased processing efficiency and/or speed

Evolutionary computation — Evolutionary computation contains a set of computational routines using aspects of nature and, specifically, evolution. U.S.

Natural language processing — Understanding and using data encoded in written language is the domain of natural language processing.

Machine learning — computational models that learn from data

Vision — Computer vision extracts and understands information from images and videos

Planning and control — Planning and control contains processes to identify, create, and execute activities to achieve specified goals
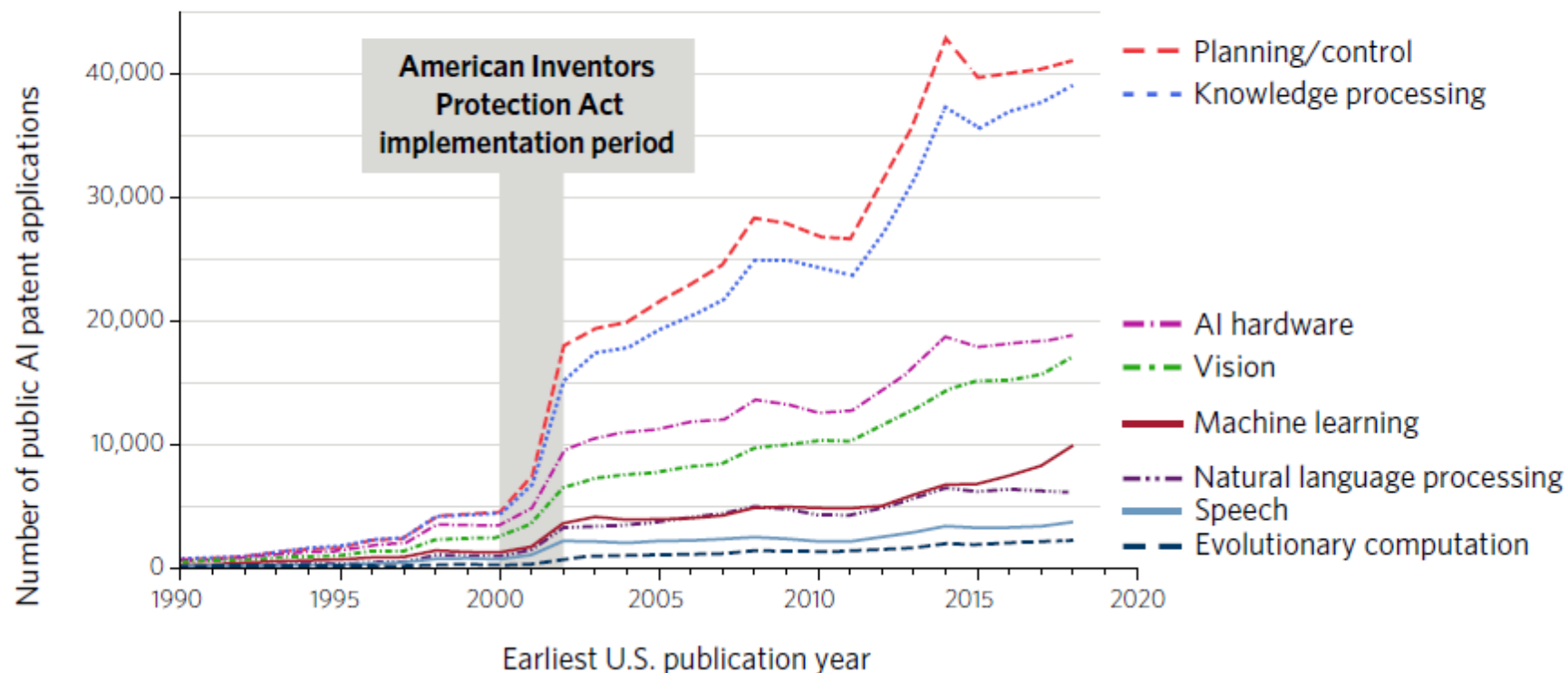
AI is increasingly important

Figure 2: The volume and share of public AI patent applications, 1976–2018
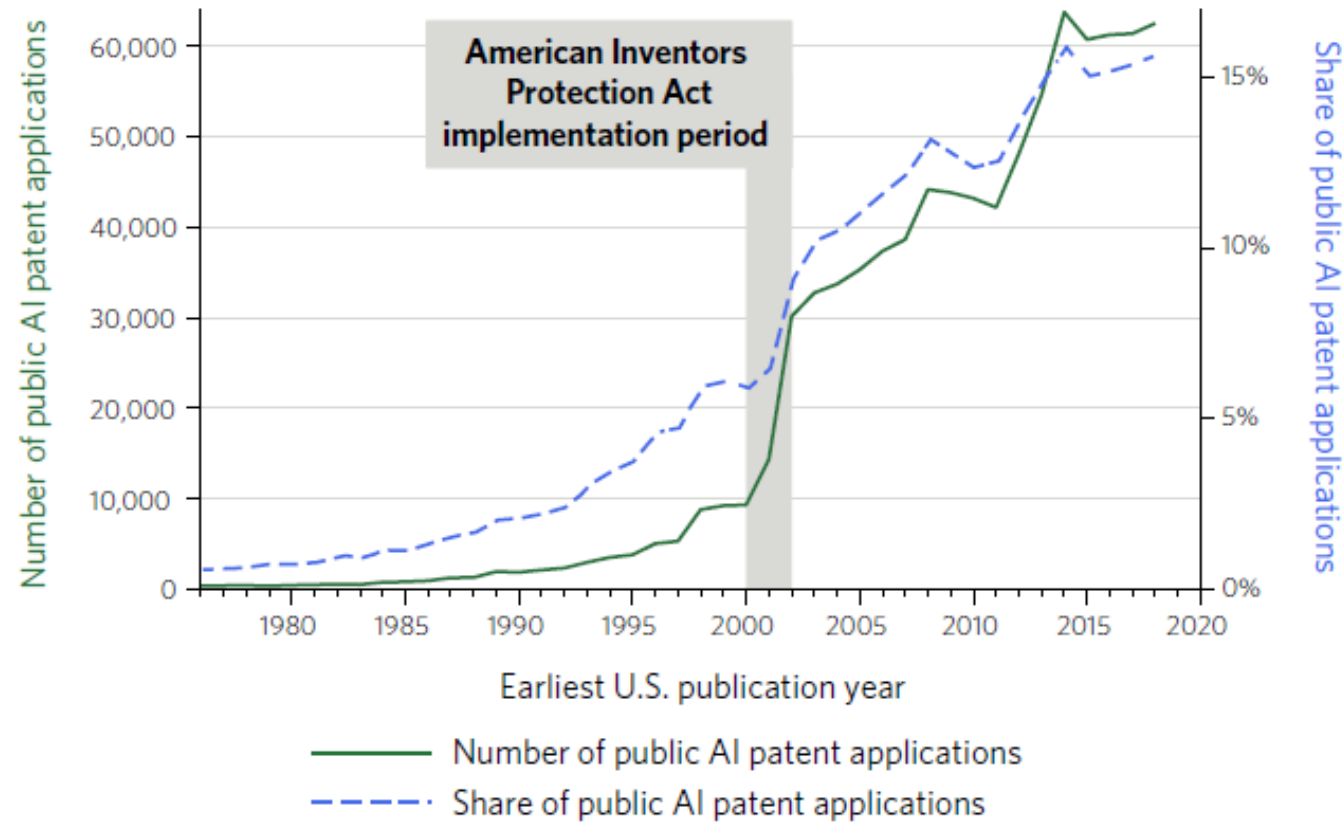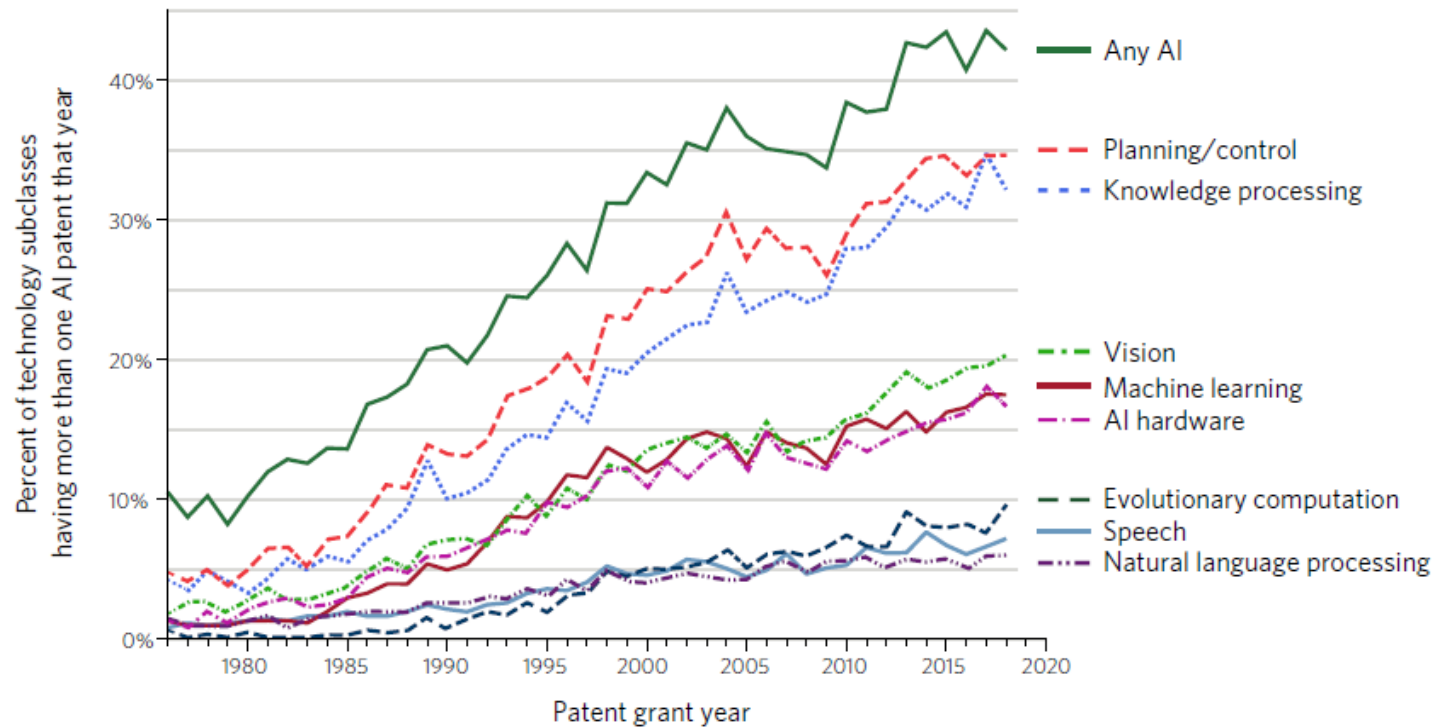
AI Patent Volume by compotent

Figure 3: The volume of public AI patent applications by AI component, 1990–2018
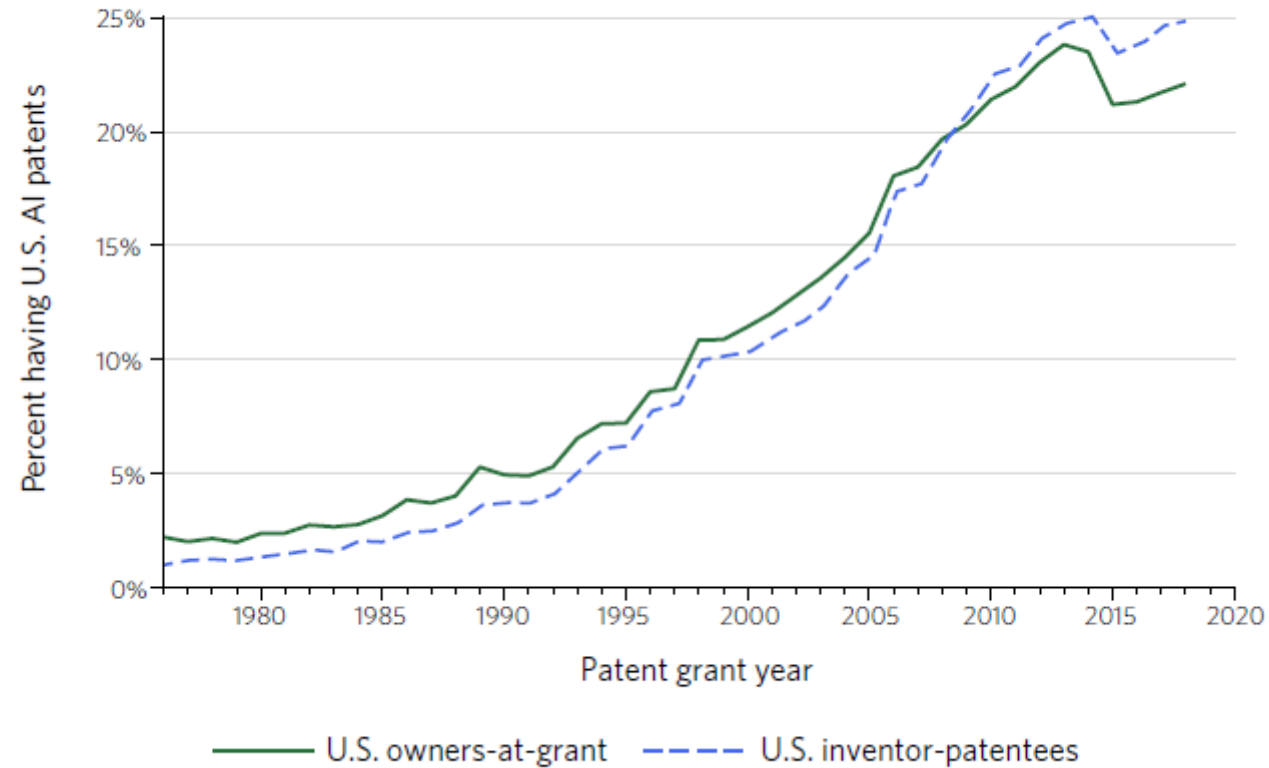
AI Diffusion across technologies

Figure 4: Diffusion of AI across patent technology subclasses, overall and by AI component, 1976–2018

Technology diffusion is the spread and adoption of a new technology by inventors, companies, and other innovators
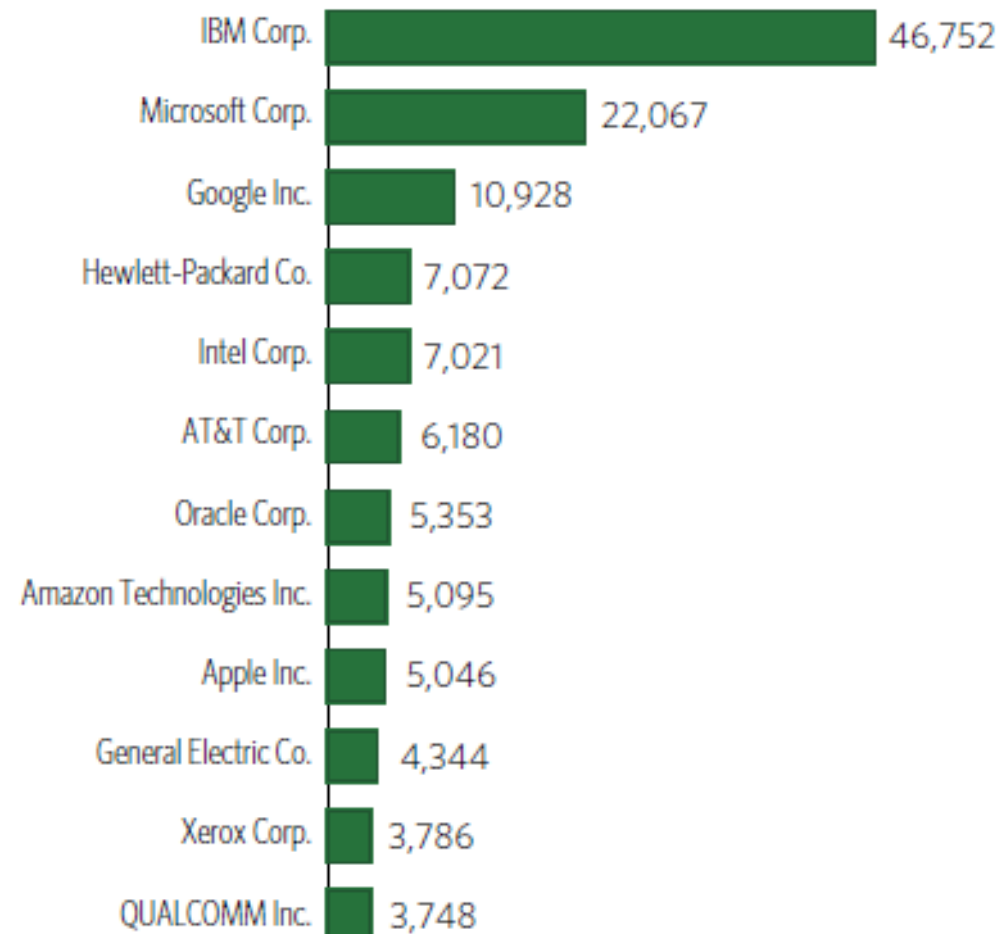
Figure 5: Annual percentage of U.S. inventor-patentees and patent owners with AI patents, 1976–2018

This means that diffusion is not just taking place across organizations but is happening within organizations—more and more inventor-patentees within organizations are adopting AI in their work.

Number of AI patents for companies

Figure 6: Top 30 U.S. AI patent owners-at-grant, 1976–2018

Company	Patents
IBM Corp.	46,752
Microsoft Corp.	22,067
Google Inc.	10,928
Hewlett-Packard Co.	7,072
Intel Corp.	7,021
AT&T Corp.	6,180
Oracle Corp.	5,353
Amazon Technologies Inc.	5,095
Apple Inc.	5,046
General Electric Co.	4,344
Xerox Corp.	3,786
QUALCOMM Inc.	3,748

AI patent diffusion by geography

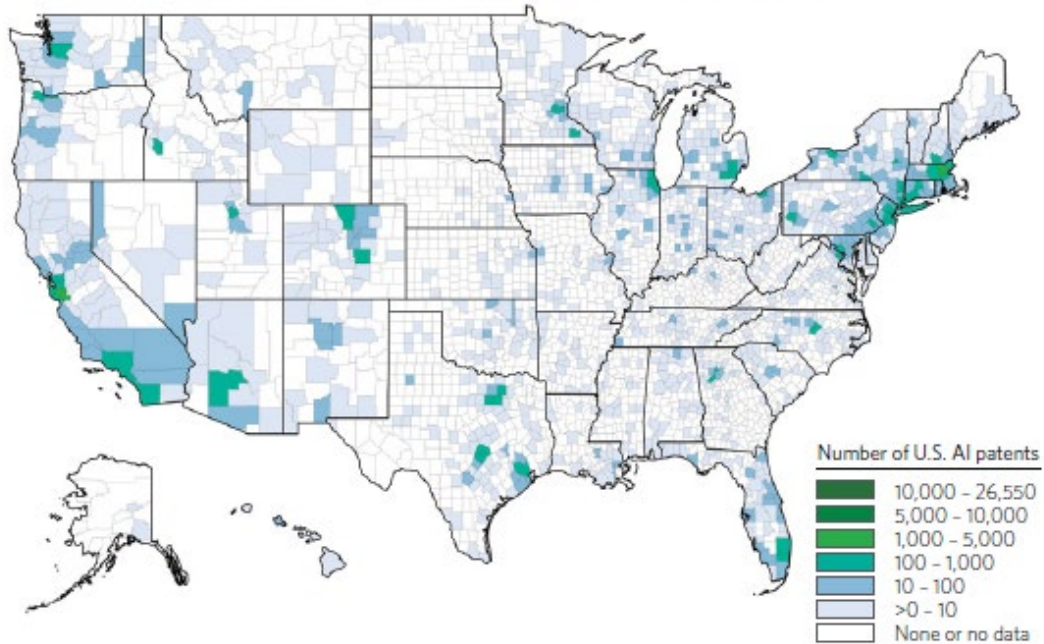Figure 7a: Granted AI patents by inventor-patentee location, 1976–2000

Figure 7b: Granted AI patents by inventor-patentee location, 2001–2018

Number of U.S. AI patents
- 10,000 – 26,550
- 5,000 – 10,000
- 1,000 – 5,000
- 100 – 1,000
- 10 – 100
- >0 – 10
- None or no data