

# Measurement of Automation Technologies and AI in Canada

Results from the 2022 Survey of Advanced Technology and 2021 Survey of Digital Technology and Internet Use

United Nations Committee of Experts on Business and Trade Statistics

September 19<sup>th</sup>, 2023



Statistics Canada  
Statistique Canada

Canada

# Data Sources

## Survey of Digital Technology and Internet Use

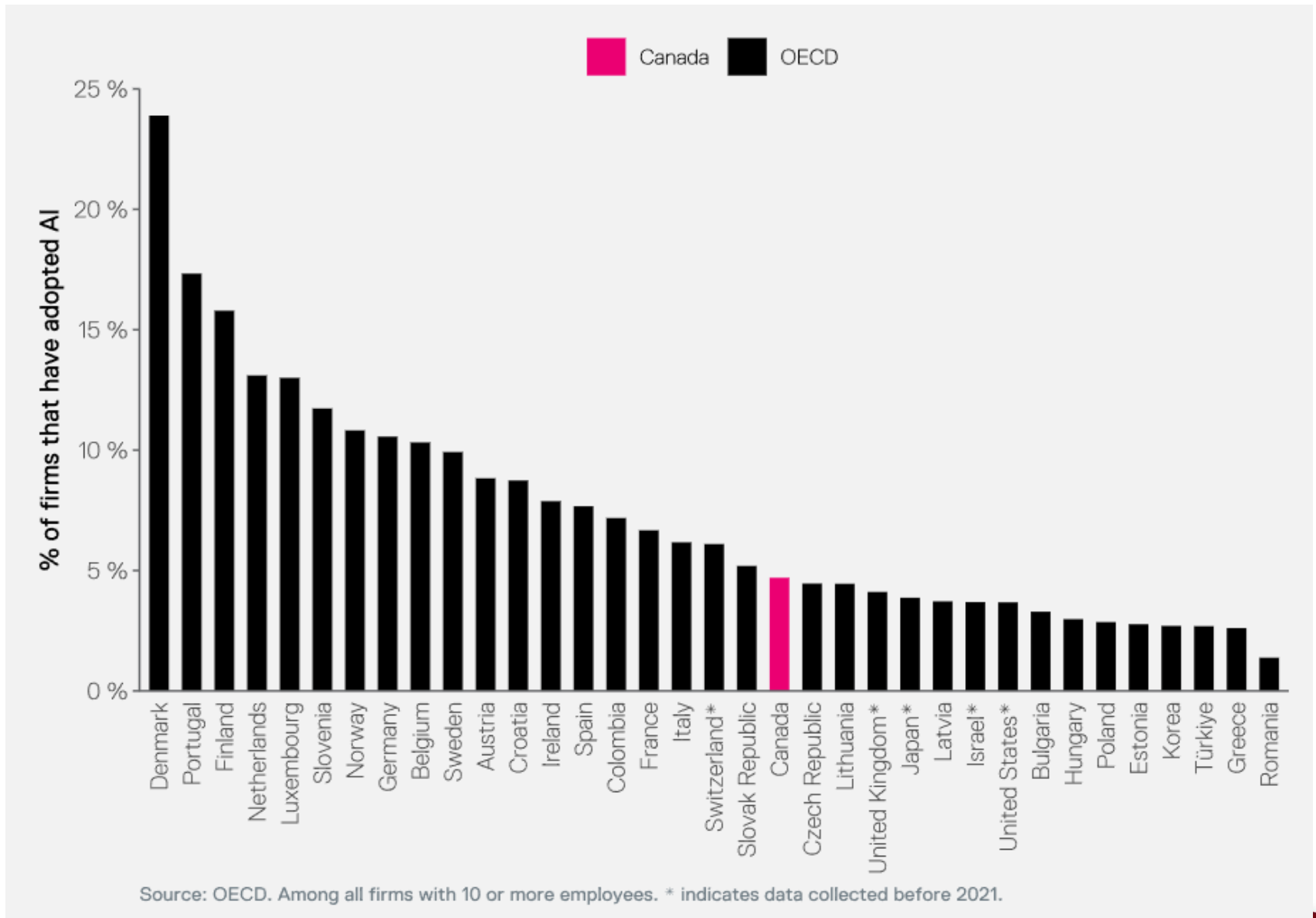
- Occasional survey – last conducted in 2021
- Sample of 15,683 enterprises (5+ employees)
- Can combine data with other survey data or administrative holdings

## Survey of Advanced Technology

- Occasional survey – previously conducted in 2014
- Data from 2022 released July 28<sup>th</sup>, 2023
- Stratified simple random sample of 13,347 enterprises (10+ employees)
- Can combine data with other survey data or administrative holdings

Just under 5% of Canadian firms with 10 or more employees had adopted AI in 2021.

Source for Canada: Survey of Digital Technology and Internet Use, 2021



# What factors led to AI adoption?

- Size of firm
  - Large firms (100+ employees) had a much higher rate of adoption at 20% than small (4-19 employees) or medium (20-99 employees) firms at 3% and 6%, respectively
- Industry
  - Utilities, Information and Cultural Industries, and Finance and Insurance enterprises were most likely to have adopted AI technologies
- Firms that actively invest in the skills of their own ICT workers are 16 percent more likely to have adopted AI technology

# Measuring the Adoption of Artificial Intelligence in the Survey of Advanced Technology

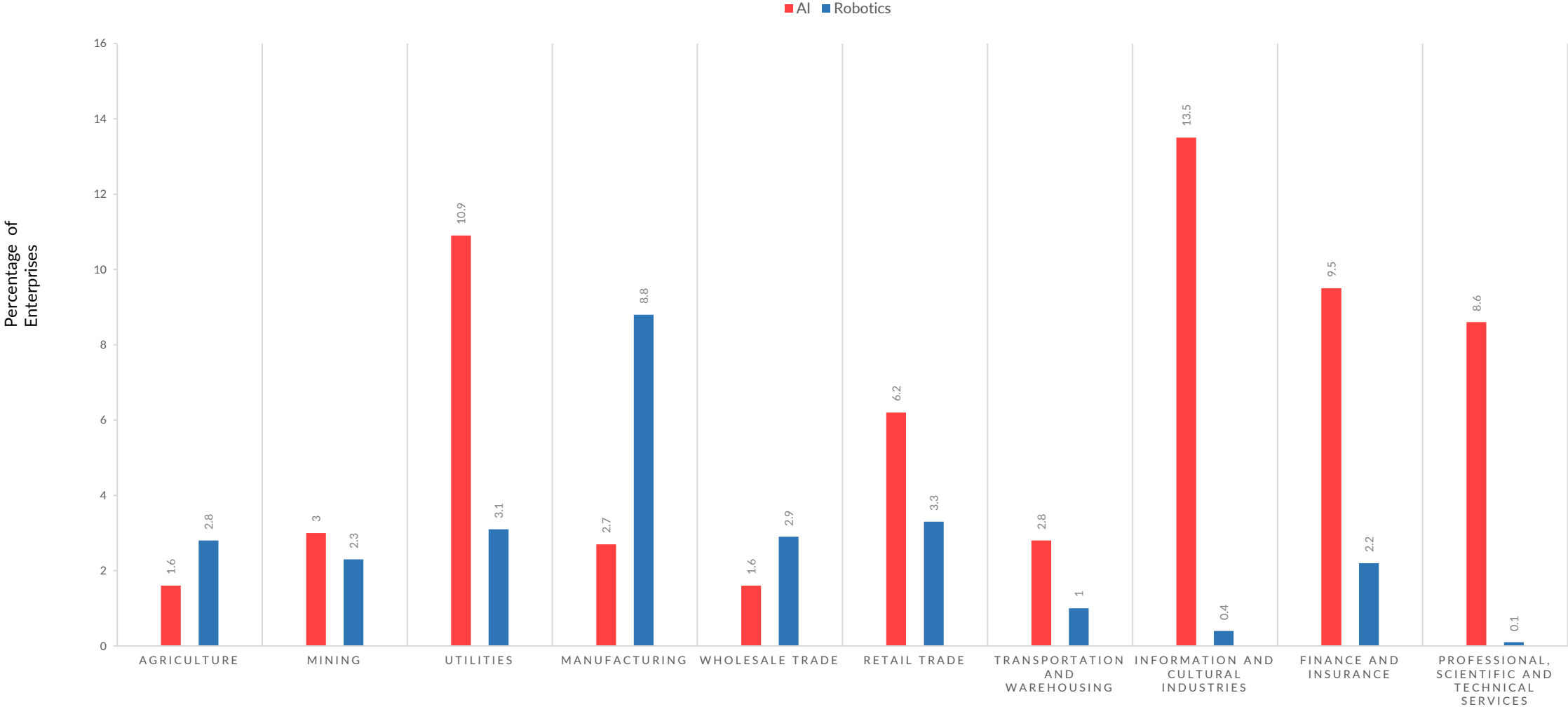
39. Does your enterprise use, develop or produce and sell artificial intelligence technologies?

	Applicable but no plans to implement in the next two years	Plan to do the following activities within two years	Have done the following activities for three years or less	Have done the following activities for more than three years	Not applicable
a. Use in operations but developed by other organizations					
b. Develop in-house for own use in operations					
c. Produce and sell					



- Additional questions related to AI on the Survey of Advanced Technology:
  - The use, development or production of particular types of AI
  - Fields working with AI in the enterprise
  - The extent to which the firm has reached certain objectives through the use of AI technologies
  - Obstacles to AI adoption and use and their relative significance
  - Measures taken to reduce obstacles to AI adoption
- Similar questions are asked for each technology grouping, including robotics

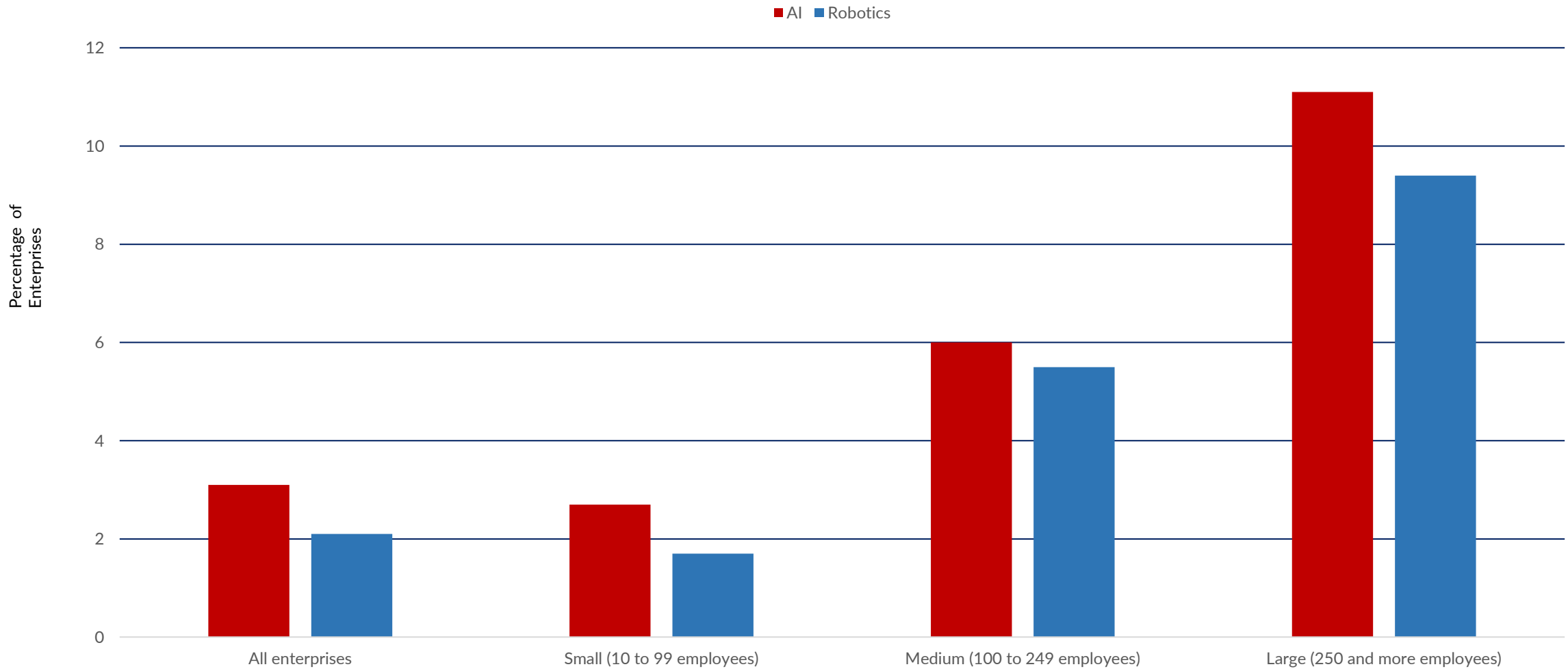
# USE OF AI TECHNOLOGIES AND ROBOTICS, BY INDUSTRY



Source: Survey of Advanced Technology, 2022



# USE OF AI TECHNOLOGIES AND ROBOTICS, BY FIRM SIZE



Source: Survey of Advanced Technology, 2022



# Moving Forward in Canada

- Respond to the needs of data users
- Further work on definitions / comparable indicators
- Linkage to firm performance (in line with TT objectives)

