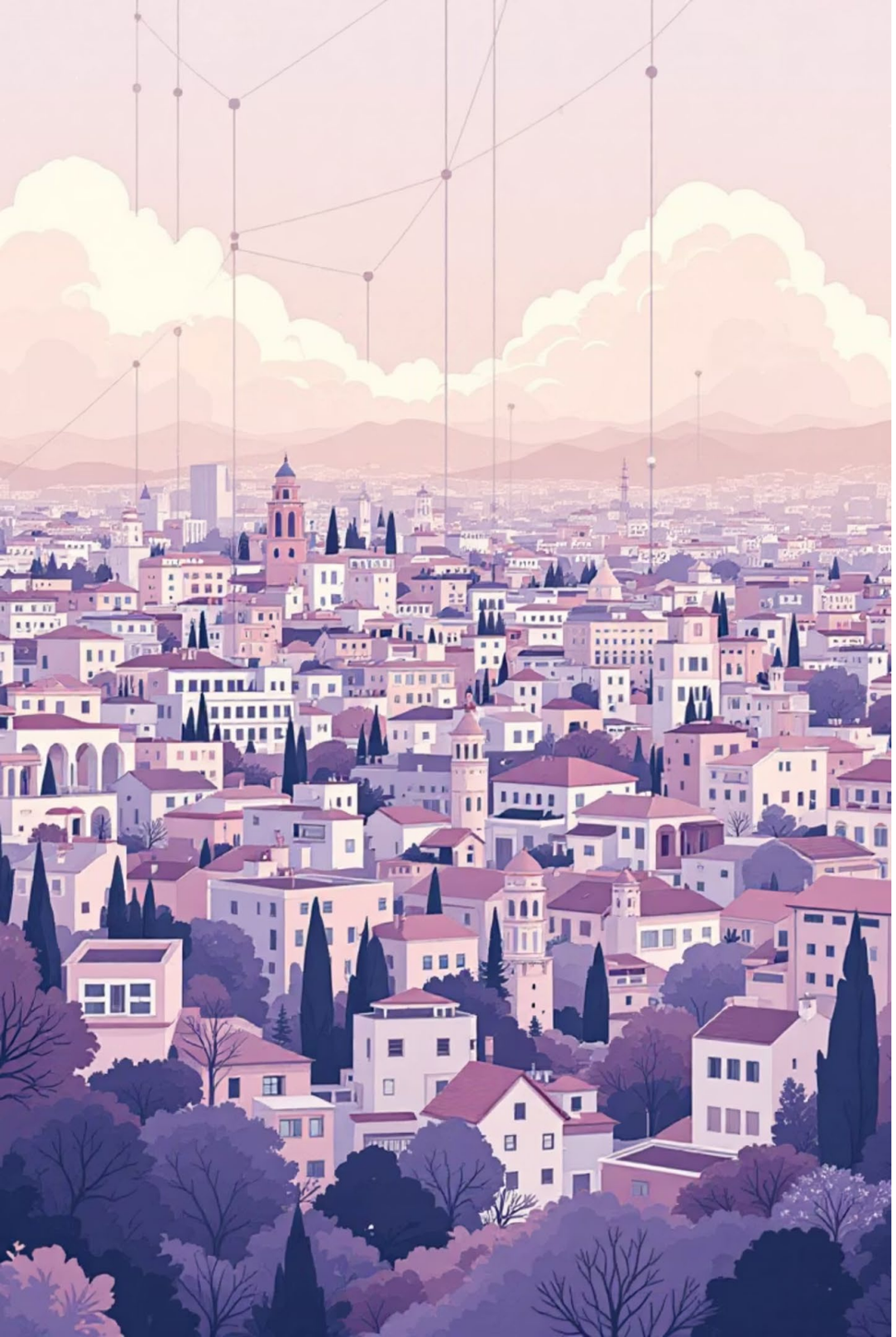

Understanding AI Vulnerability and Digital Gaps in Israel

Adv. Michael Sierra

Faculty of Law, Hebrew University of Jerusalem

Scientific Conference "Understanding and addressing digital inequalities" - European University Institute, November 2025

האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

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The AI Inequality Challenge

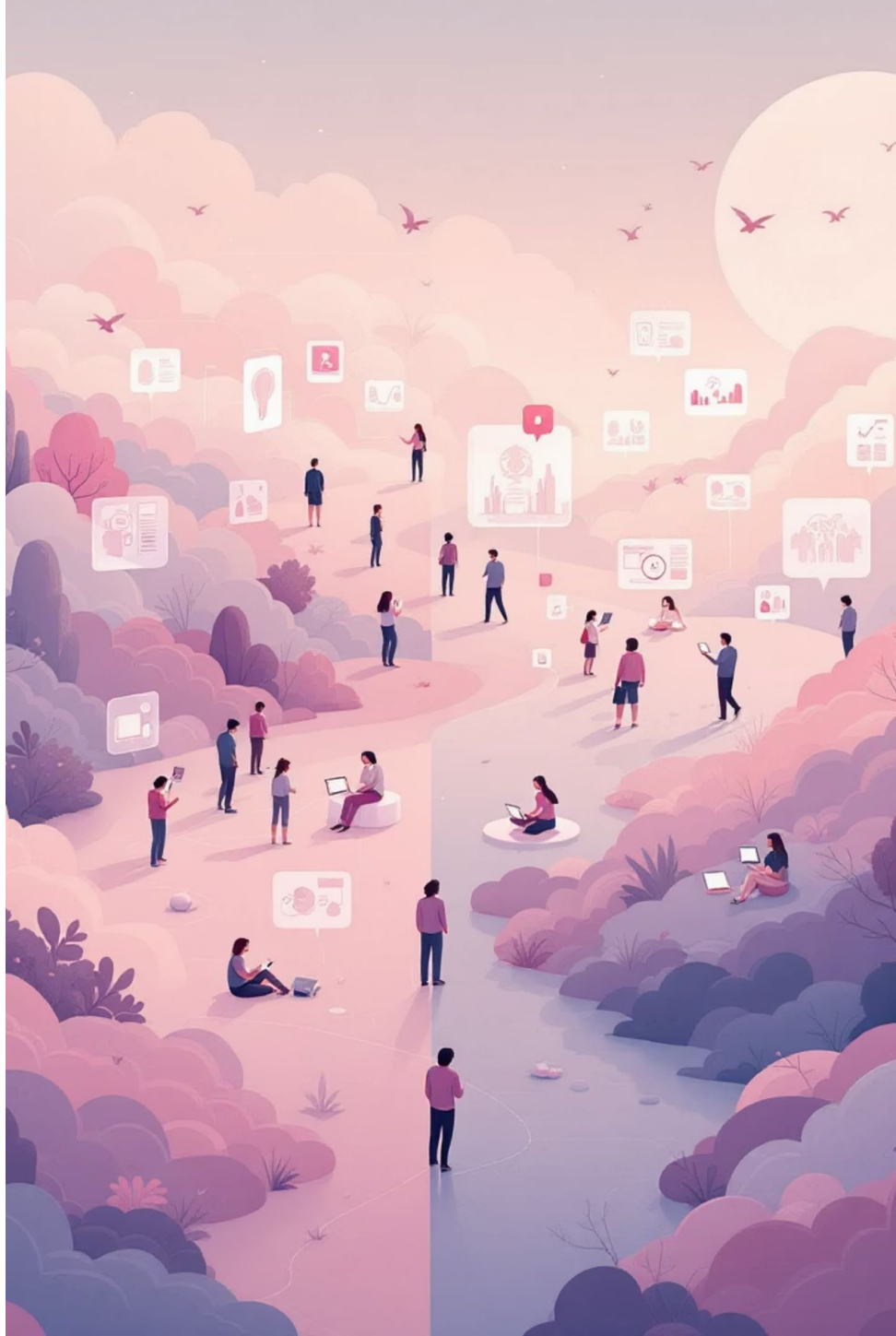
The Problem

AI systems pose new risks of exclusion and harm for socially and economically disadvantaged groups.

In Israel, technological innovation coexists with deep social fragmentation.

The Gap

Most AI policy focuses on innovation and economic growth, sidelining equity and human rights concerns.

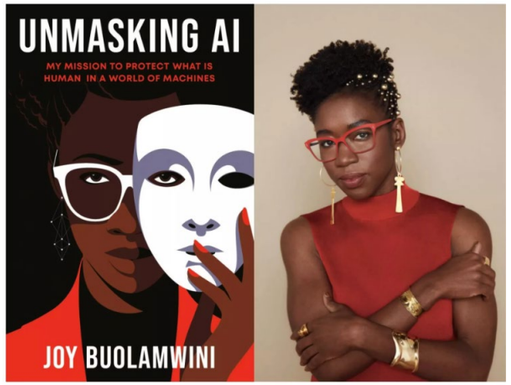


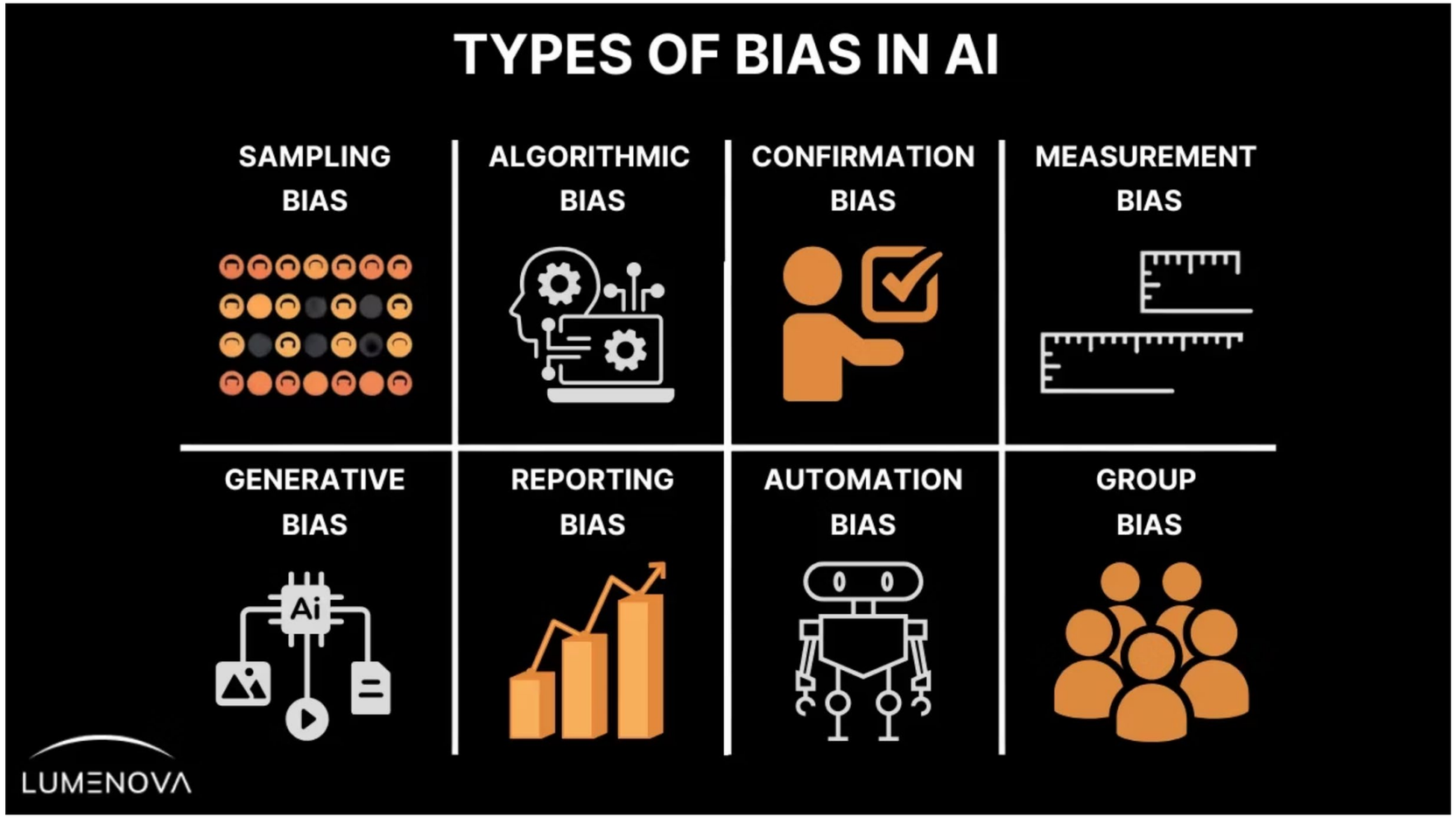
Some examples

Machine learning models can entrench racial, gender, and economic biases, calling them “weapons of math destruction” when deployed in sensitive areas like criminal justice or finance (Noble, 2018; O’Neil, 2016).

Predictive policing tools have been shown to over-target minority neighborhoods, reflecting and reinforcing existing inequalities.

Language models have been found to produce racially biased language and often struggle with dialects and accents that are not well-represented in their training data.





- **AI in Hiring**: Gender bias in ML models may prioritize male applicants based on historical hiring trends.
- **Healthcare AI**: Data bias in ML models might cause diagnostic tools to underperform for underrepresented groups.
- **Financial Services**: AI bias in financial services can result in credit scoring models unfairly denying loans to minority applicants.

Algorithmic Bias and Epistemic Injustice

Biased Training Data

AI systems reproduce historical prejudices from their training data, leading to discriminatory outcomes against protected groups.

Testimonial Injustice

Marginalized voices are unfairly doubted or silenced due to algorithmic bias, excluding non-dominant perspectives.

Algorithmic Opacity

When people cannot understand or challenge automated decisions, they are shut out from knowledge-production itself.

Epistemic Exclusion

AI-driven platforms systematically exclude non-dominant knowledge systems, erasing contributions from marginalized communities.

Affected Communities

Arab Citizens

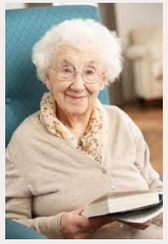
Face linguistic, cultural, and material barriers to digital participation. AI systems often rely on biased data that overlooks cultural context.

Ultra-Orthodox Jews

Navigate tensions between religious values and technology. Limited digital literacy combined with cultural restrictions create unique vulnerabilities.

Children

Lack access to digital infrastructure and education. Essential services moving online create compounded disadvantages.



Older adults

Remote areas face reduced access to computational resources, data, and advanced programming capabilities.

The Scale of Digital Exclusion

1.3M

Digitally Excluded

Israeli residents lack basic digital literacy skills—13% of the population.

26%

Adults Without Skills

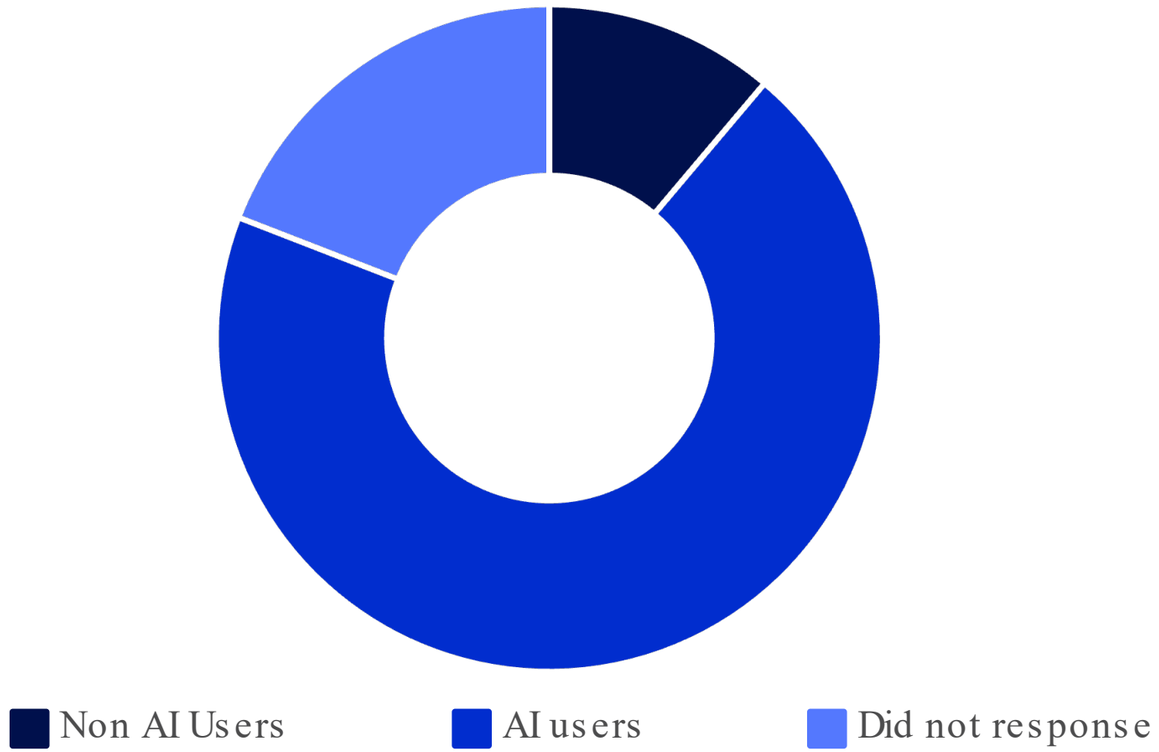
Of adult population lacks functional digital skills for modern participation.

173%

AI Startup Growth

Israeli AI startups lead innovation, compared to only 12% growth in non-AI companies.

Israel Population

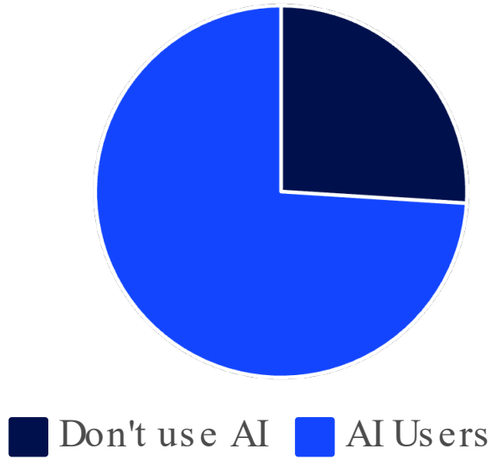


Source: Isoc.org.il

Arab Citizens

- Limited access to digital infrastructure and higher education
- Predictive systems label them as "high risk" or "low potential"
- Deep-fake technologies amplify bullying
- Facial recognition biases
- Struggle with opaque interfaces and manipulative designs
- Targeted by fraudulent schemes
- Absent from AI policy consultations and design processes
- Arabic-language content remains underrepresented in machine learning datasets

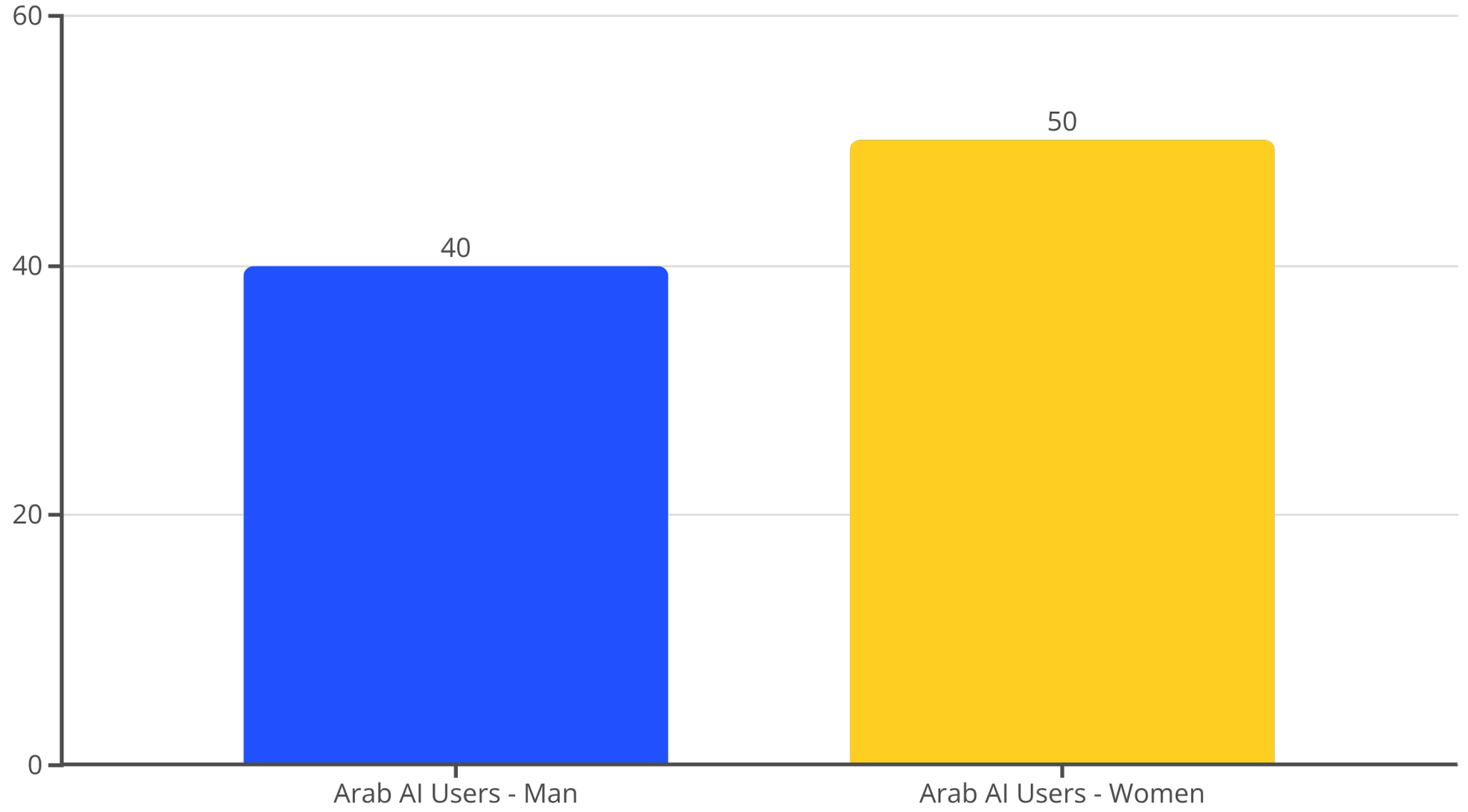
Arab Citizens



Non AI users 26%

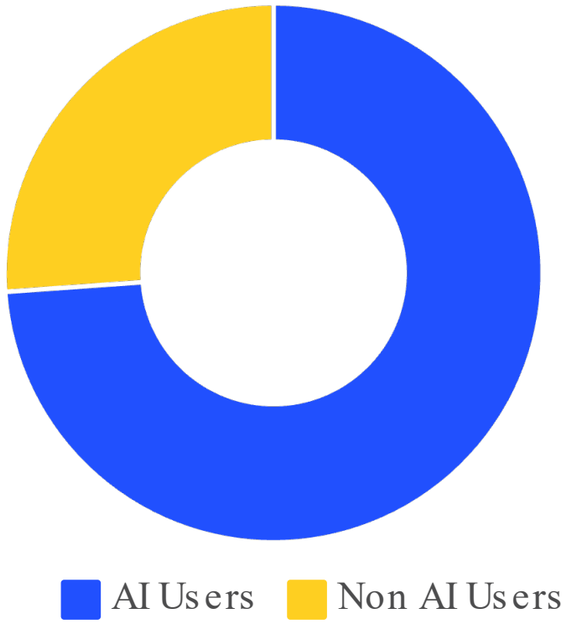
AI users 74%

Source: Isoc.org.il



Source: Isoc.org.il

Arabs in the age-18-24 in Israel

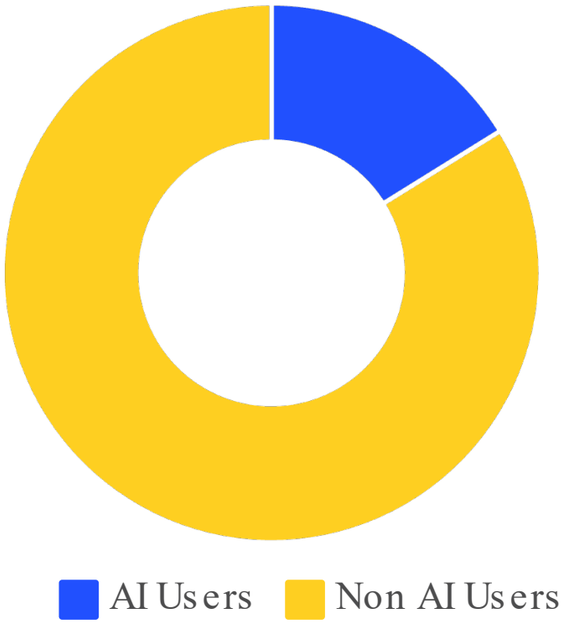


Non AI users 26%

AI users 74%

Source: Isoc.org.il

Arabs in the age 65+ in Israel



Non AI users 26%

AI users 74%

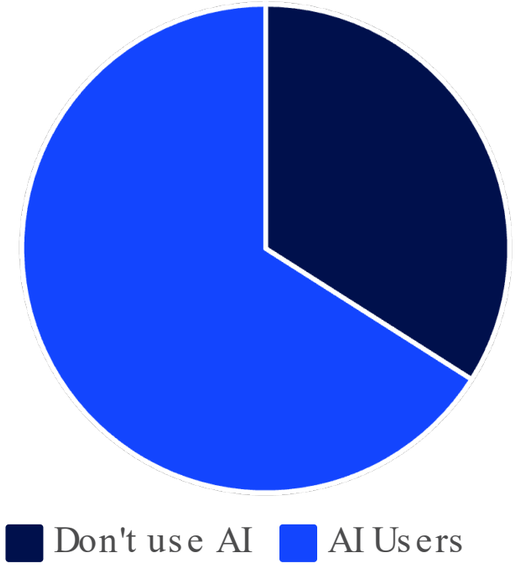
Source: Isoc.org.il

Ultra-Orthodox (Haredim)

Haredim

Non AI users 34%

AI users 66%



Source: Isoc.org.il

The UltraOrthodox Community Challenge

Authority Disruption

AI challenges traditional rabbinic control as machines produce instant responses, destabilizing knowledge transmission.

Cultural Exploitation

AI-driven fraud exploits religious symbols through "kosher cryptocurrencies" and forged rabbinic endorsements.

Filtered Access

"Kosher" devices limit connectivity but conceal how algorithms collect data or shape behavior.

Gender Divide

Women develop higher digital literacy but face greater vulnerability. Men remain digitally dependent and poorly informed.

Expected to comprise 16% of Israel's population by 2030, this community faces unique technological and theological tensions.


איפה יוסל'ע...?
תודה-
אידה
מתנה!
אל תלכו אחר משאות שוא ומדיחים! ואל תשלחו את בניכם להקרנות

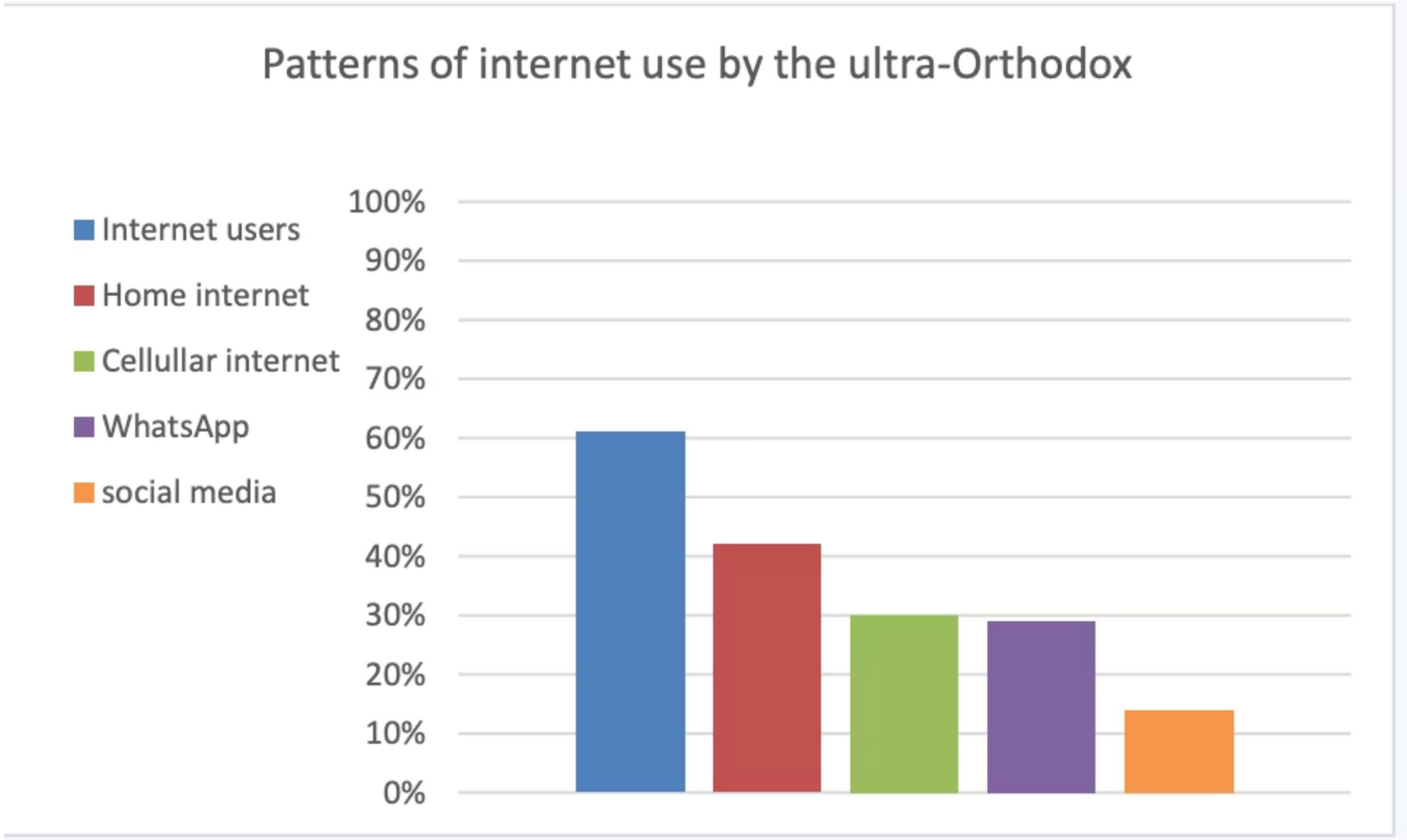


Figure 1: Patterns of internet use by the ultra-Orthodox (Social Census Survey, 2020)

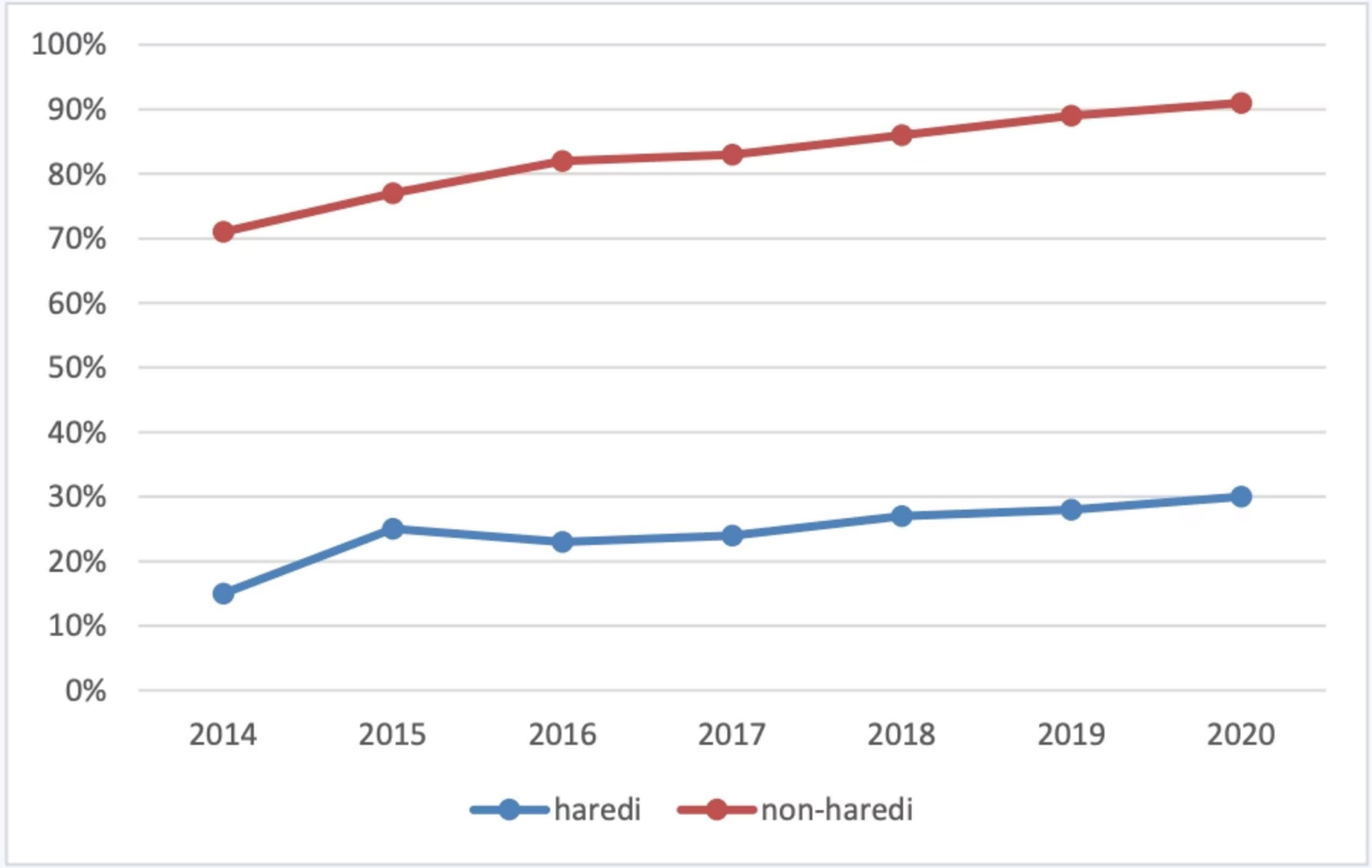


Figure 2: Use of the cellular internet, 2014-2020 (CBS, 2020)

Vulnerable Populations: Children and Older Adults

Children

- Struggle to distinguish ads from genuine content
- Predictive systems label them as "high risk" or "low potential"
- Voice assistants externalize emotional regulation
- Deep-fake technologies amplify bullying

Learning becomes transactional, stripped of critical thinking.

Older Adults

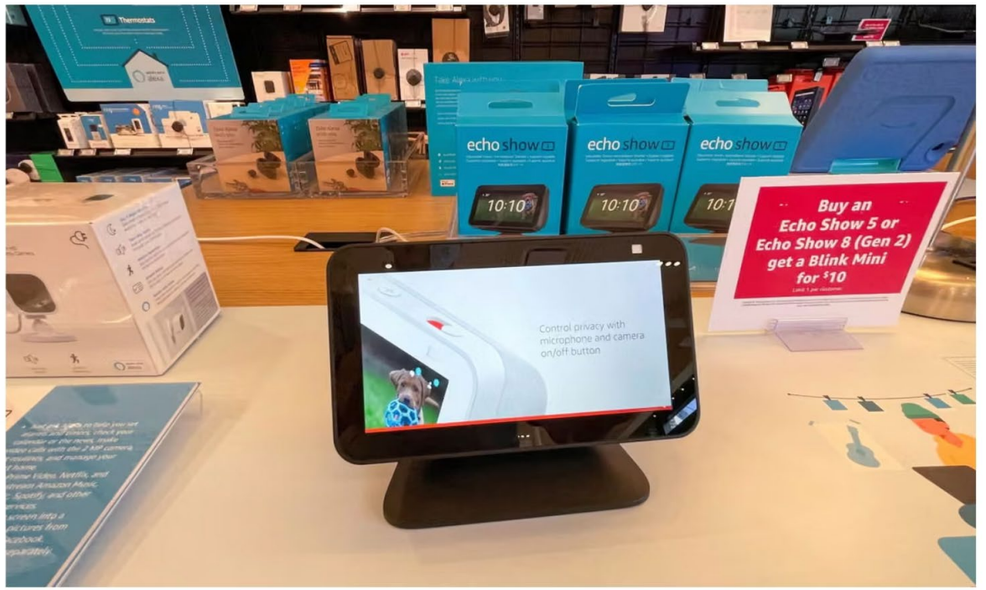
- Encounter AI at crossroads of physical decline and digital exclusion
- Struggle with opaque interfaces and manipulative designs
- Targeted by fraudulent schemes exploiting synthetic voices
- Absent from AI policy consultations and design processes

Algorithmic ageism reinforces stereotypes of obsolescence.

Adam Raine

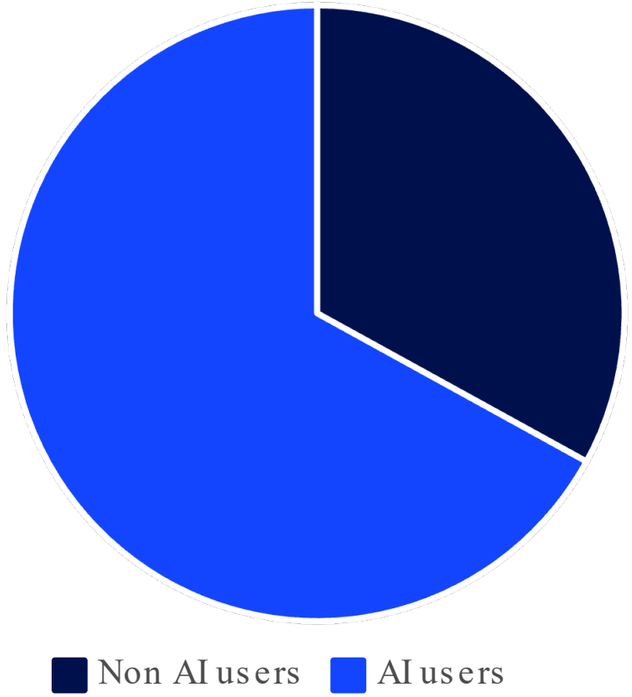
Amazon's Alexa device tells 10-year-old to touch a penny to a live plug socket

The child had asked the Echo smart speaker for a challenge, prompting her mother to post the response on Twitter



A mother tweeted her outrage after her Echo smart speaker told her young daughter to touch a penny to a live plug socket. Photograph: Mike Blake/Reuters

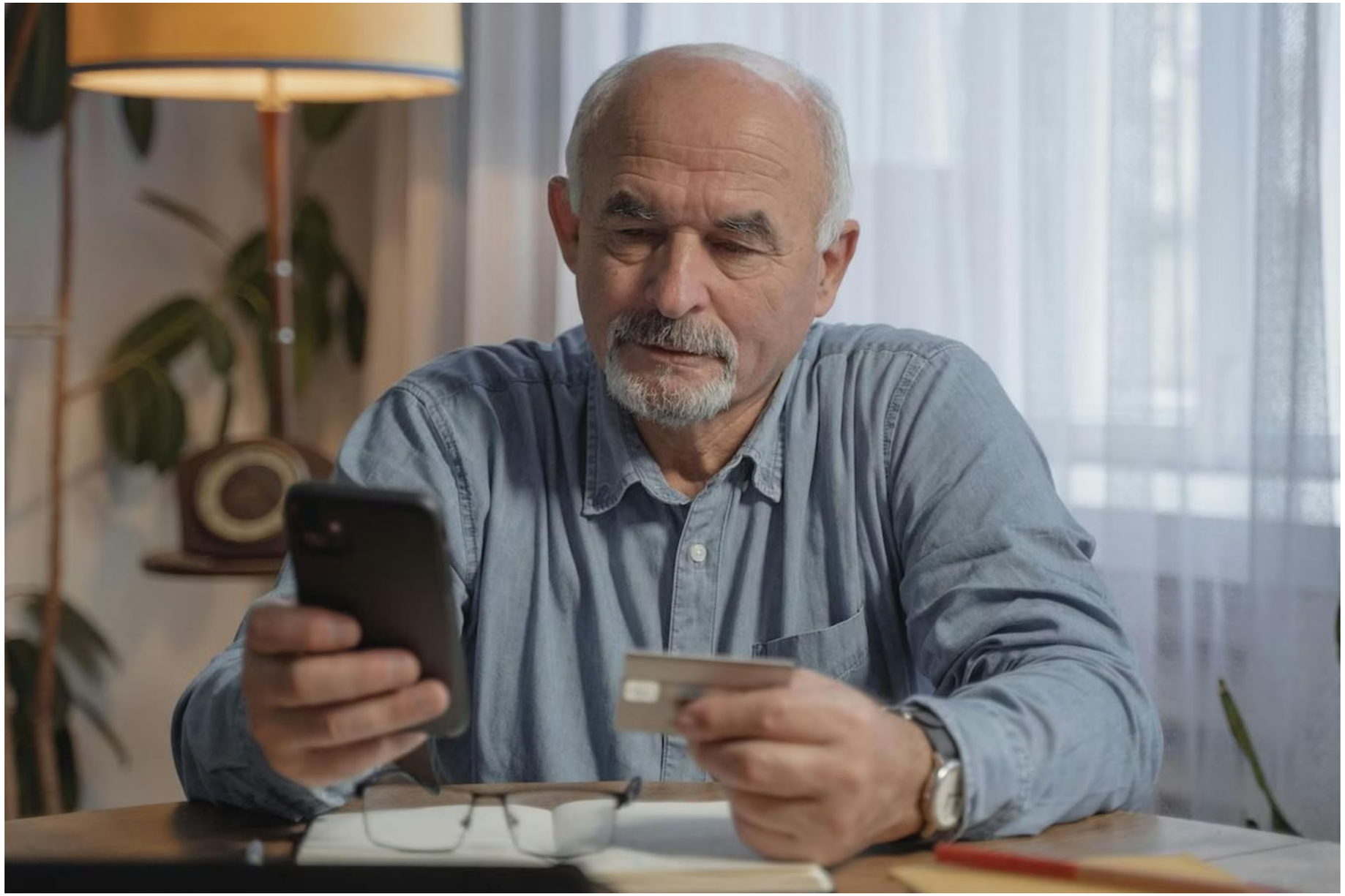
Older adults



Non AI users: 33%

AI users: 67%

Source: Isoc.org.il



Israel's Regulatory Approach: Soft Law

1 — 2021

Ministry published ethical guidelines for AI—explicitly non-binding.

2 — 2022

National AI plan formulated. Justice Ministry noted no need for specific legislation yet.

3 — 2023

Government Decision 173 advanced national AI program. Guiding principles published—flexible, non-binding.

4 — 2024

Inter-ministerial report on AI in financial sector proposed regulatory sandboxes.

Israel favors flexible soft law over rigid regulation to avoid hindering innovation, but no binding regulation governs AI use in public sector.

Policy Recommendations

01

Rights-Based Regulatory Framework

Enact binding regulations centering equity, accountability, and human rights. Mandate algorithmic impact assessments and fairness audits for high-risk AI systems.

02

Strengthen Civil Society Role

Support NGOs and researchers as independent watchdogs through funding, data access, and legal standing to conduct third-party algorithmic audits.

03

Inclusive Innovation Incentives

Prioritize "AI for social good" projects addressing marginalized communities' needs. Incorporate participatory design methodologies.

04

Educational Reforms

Integrate AI literacy into national curricula. Teach societal implications, algorithmic bias, and critical questioning of AI outputs.

05

Fairness by Design

Require co-design processes embedding fairness norms within algorithm development, especially for systems affecting vulnerable groups.

A Path Forward

> "Only through a paradigm shift can Israel—and other digitally advanced yet socially fragmented societies—ensure that AI serves as a tool for empowerment rather than a driver of deeper exclusion."

Justice-Oriented Approach

Center experiences of marginalized communities and integrate human rights into AI design, deployment, and regulation.

Inclusive Policymaking

Move beyond innovation-focused discourse to address distributive justice and fundamental rights protection.

Structural Reform

Address underlying power asymmetries rather than privatizing responsibility onto individuals or firms.

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