# RAIL Fellowship Symposium
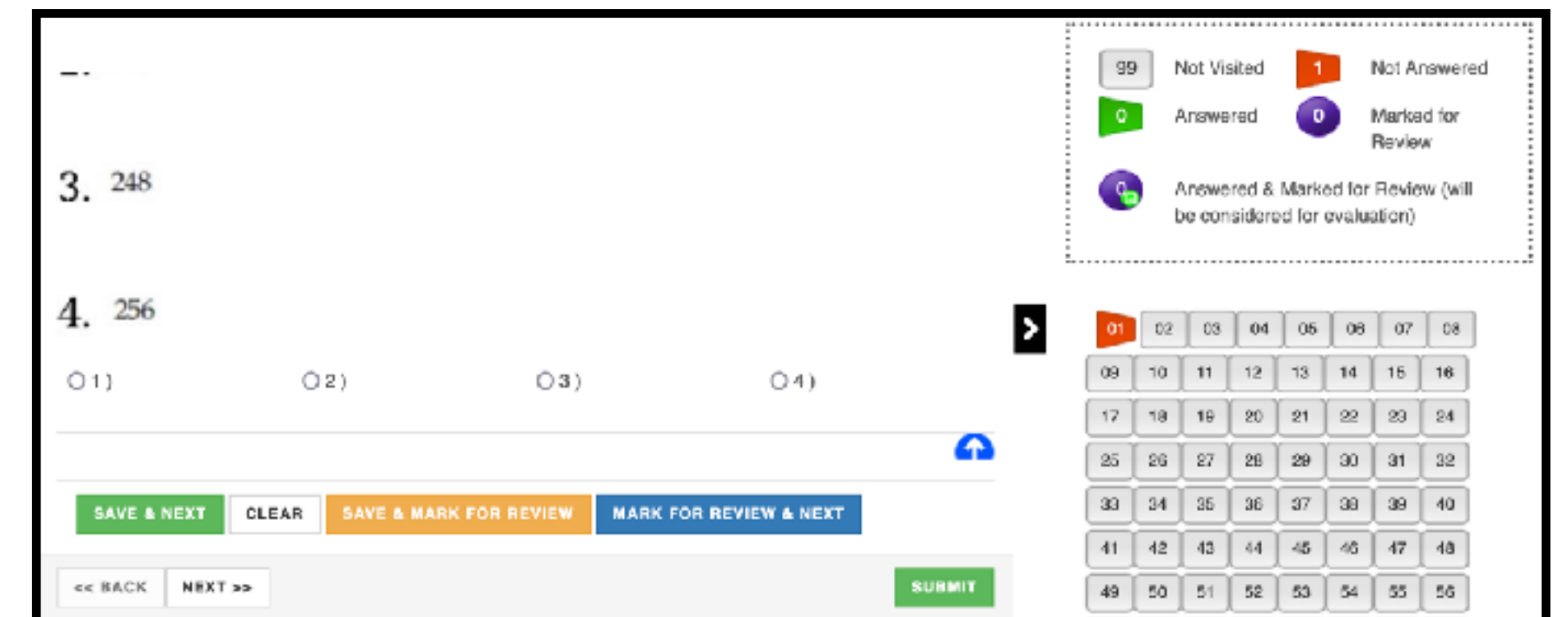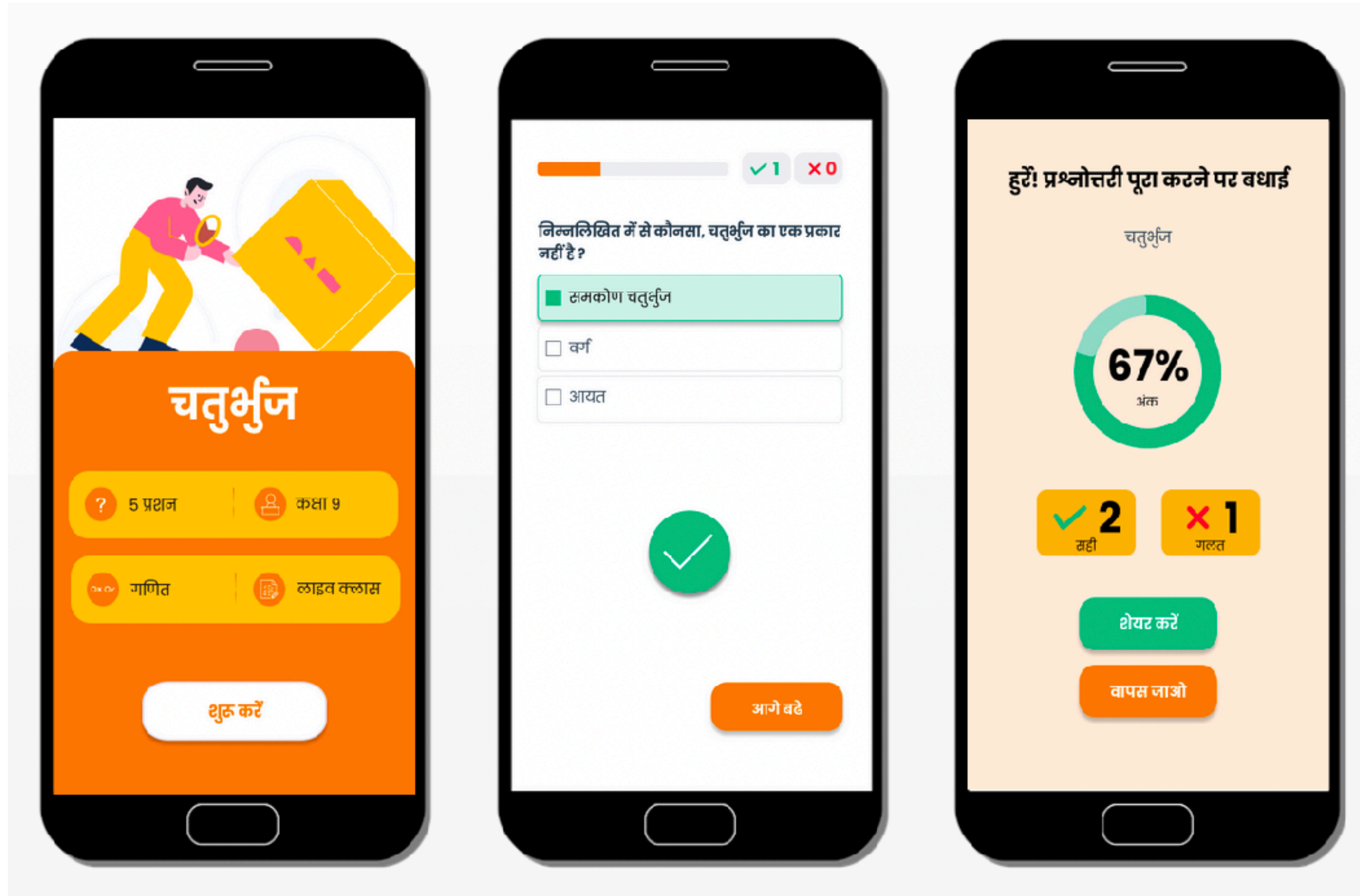
## A Tech Worker's Perspective

Bengaluru, 28th Nov. 2024
suryateja@avantifellows.org

# AF Mission

Help students lift themselves & their families out of poverty in a **single generation** by helping them qualify to **quality professional undergraduate courses** & develop the skills needed to build successful careers
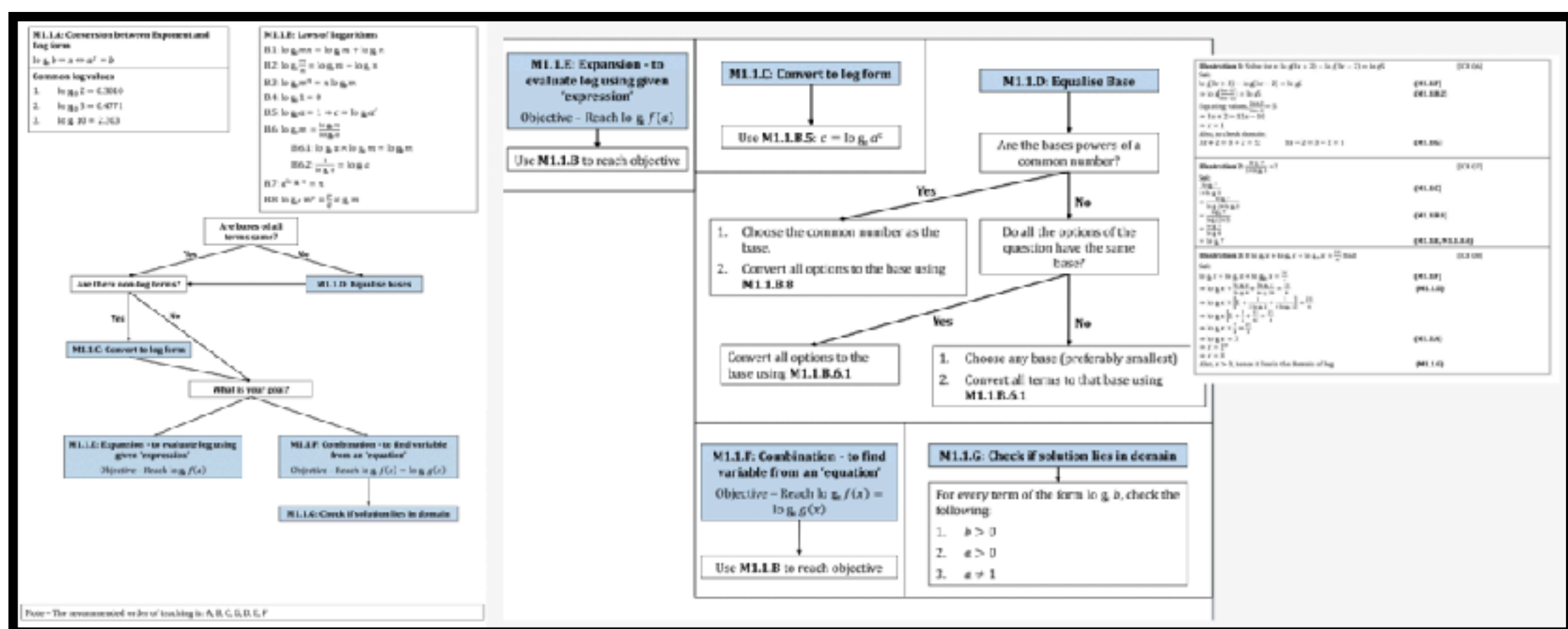
# Quiz Engine



NTA Web Application with ~20 sample papers

# Quiz Engine Flow



Question Bank (~1.5 Lakh), Worksheets
**Curriculum** & **Production** Teams
*+ Teachers*

**Operations** Team
*+ Teachers*

**Tech** Team

Reports
& Analysis

**Ops, Tech**
*+ Teachers*

# An issue in the QE Flow



Report Card

Students rarely revisit quizzes :(

# AI Intervention



**Inactive Learning:** Immediately view the correct answer

**Delayed Feedback**: Answer a simpler pedagogical question or a Yes/No question

*Smaller*
*Conceptual*
*Atomic*
*Quick*
*(Mostly) correct*
*Personalised*

# Frameworks, Checklists, Rubrics, ...



Generic Frameworks



Long Checklists
*45+ points!*

- Be interpretable, accountable, transparent, nice, good, fair, ethical

(v/s)

- Moving away from chat-like interface is better as it reduces operational load
- Inquire what teachers think of the tools

Bespoke advice; but may not be widely applicable!

"Ethics Guidelines for Trustworthy AI" by the European Commission's High-Level Expert Group on AI (2019)

Mohammad, Saif M. "Ethics sheet for automatic emotion recognition and sentiment analysis." Computational Linguistics 48.2 (2022): 239-278.

# (1) Alternative Perspectives

- Early conversations with Sarah Newman, director of metaLAB at Harvard.
  - Shared deployment experiences at her institute, enabling valuable comparisons with our own context.
  - **Machine Learner Gap**. It's crucial to adapt foreign implementations to local realities.
  - Example:  Tutor Copilot's one-on-one digital tutoring model isn't feasible at the scale of our public school systems.

- Prof. Neha Kumar's Lecture and Research:
  - Insights drawn from her analysis of **ASHA healthcare workers** with Azra Ismail
  - Key concerns (potentially for *teachers*): Job security, fears of replacement, and the use of their work to enhance AI interventions.
  - Key takeaway: Consider who is impacted and how they are impacted, ensuring interventions respect existing roles.

Nithya Sambasivan, Erin Arnesen, Ben Hutchinson, Tulsee Doshi, and Vinodkumar Prabhakaran. 2021. "Re-imagining Algorithmic Fairness in India and Beyond." (FAccT '21).

Wang, Rose E., et al. "Tutor copilot: A human-ai approach for scaling real-time expertise." arXiv preprint arXiv:2410.03017 (2024).
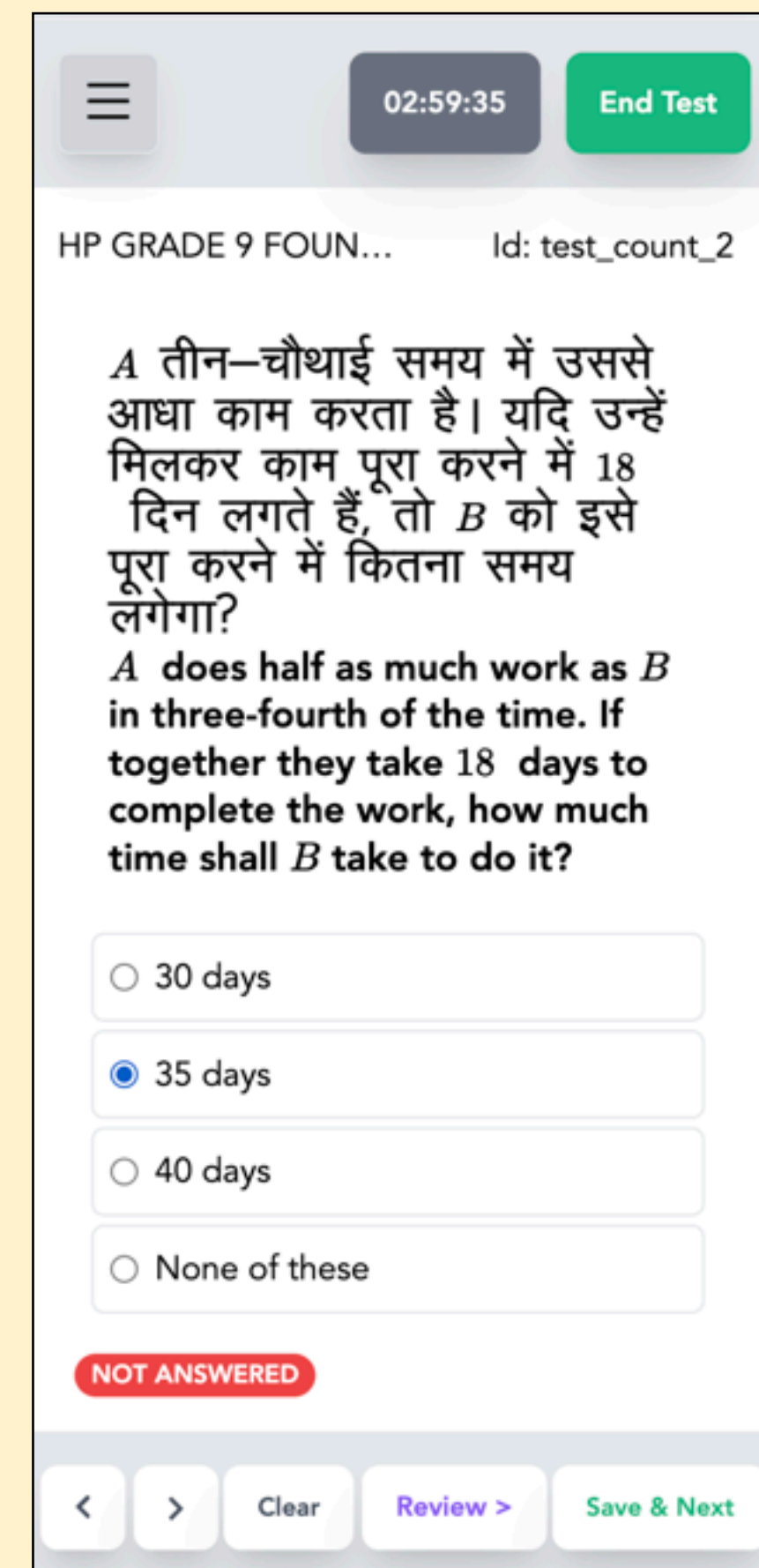
Azra Ismail and Neha Kumar. "AI in Global Health: The View from the Front Lines." CHI (2021).

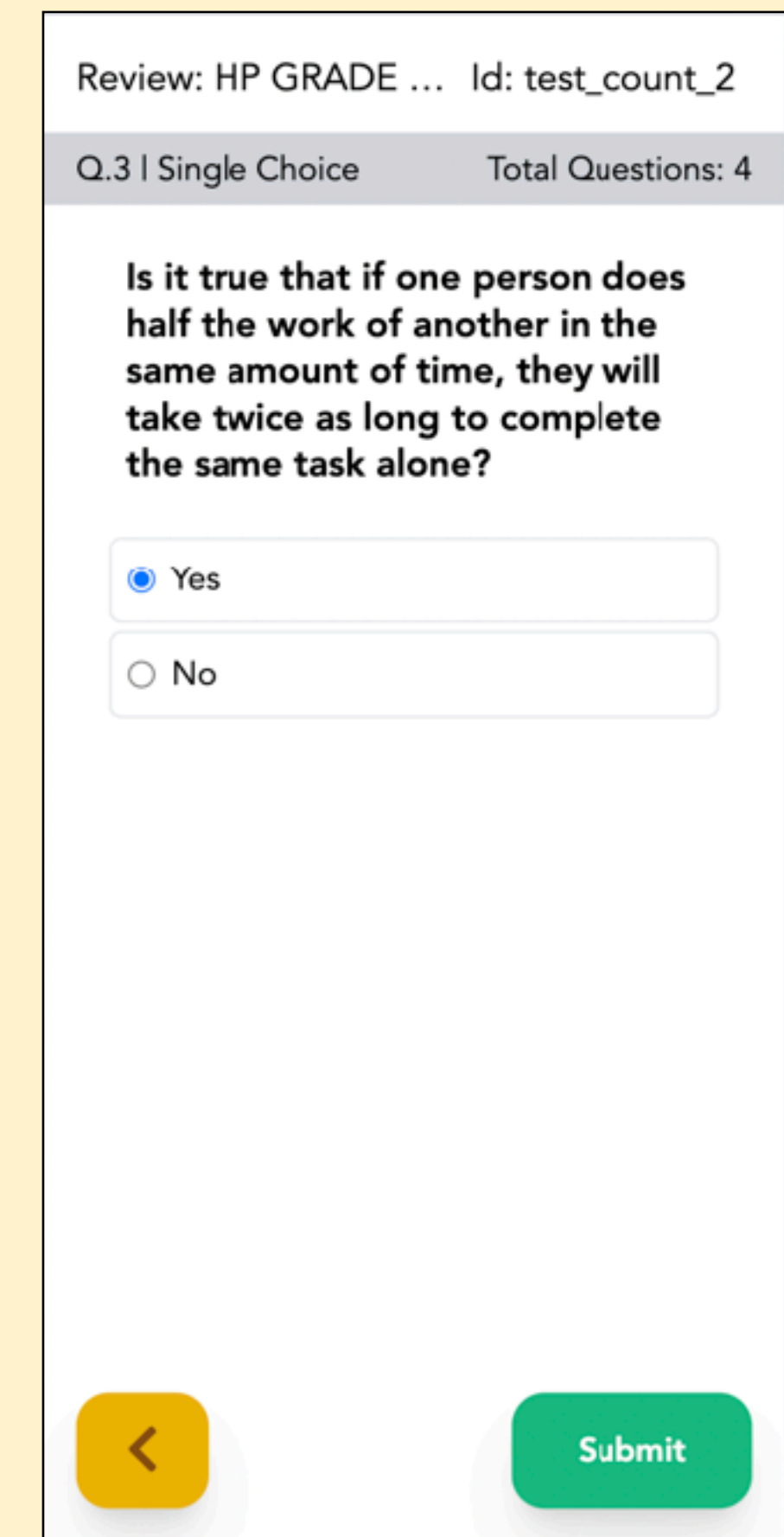Dan Meyer, "The Kids That Edtech Writes Off". (2024).

# (2) Interface Design

- Great interaction with Nishita Gill, Founder of Treemouse => Keep the UI simple! Back every design choice with careful experimentation.

- Thin beyond **chat-like interfaces**: Too many interaction points can confuse students.

- Beware of **hidden operational costs**: AI may appear to reduce workload but can quietly take over as a core feature, demanding disproportionate time and effort. Example: Grievance Redressal.



*Quiz Interface*
Cluttered
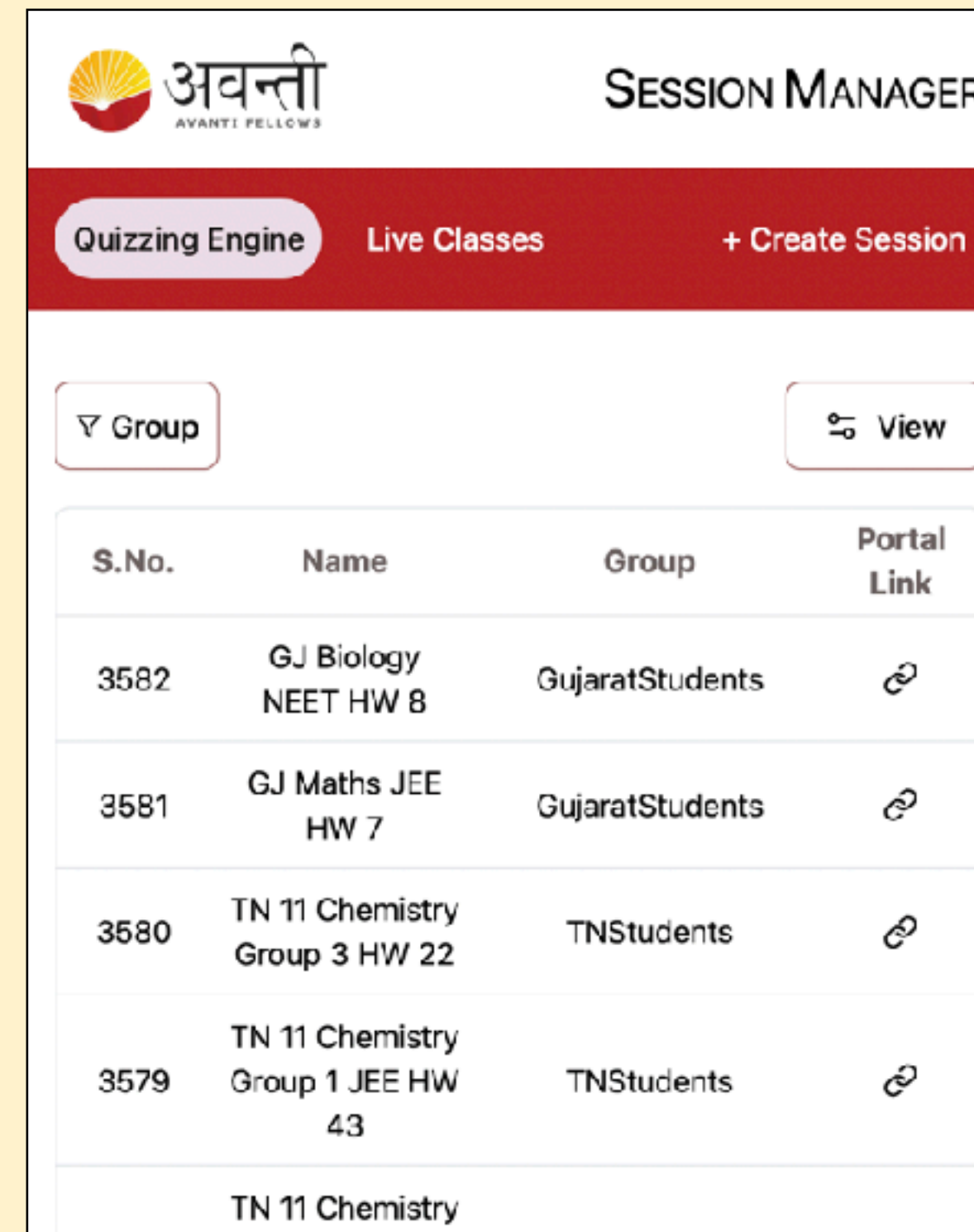


*Revision Interface*
Crisp

# (3) Open Source Implementation

- Tarunima Prabhakar's lecture: *"Care* as a necessary ethic".

- Open source pushes us to build carefully, with a sense of accountability.

- Welcoming interns and contributors builds capacity and spreads values, even if copycats emerge.

- **AI Anti-Marketing**. Share negative results to encourage critical thinking and innovation.

*Session Manager*

*Futures Tool*



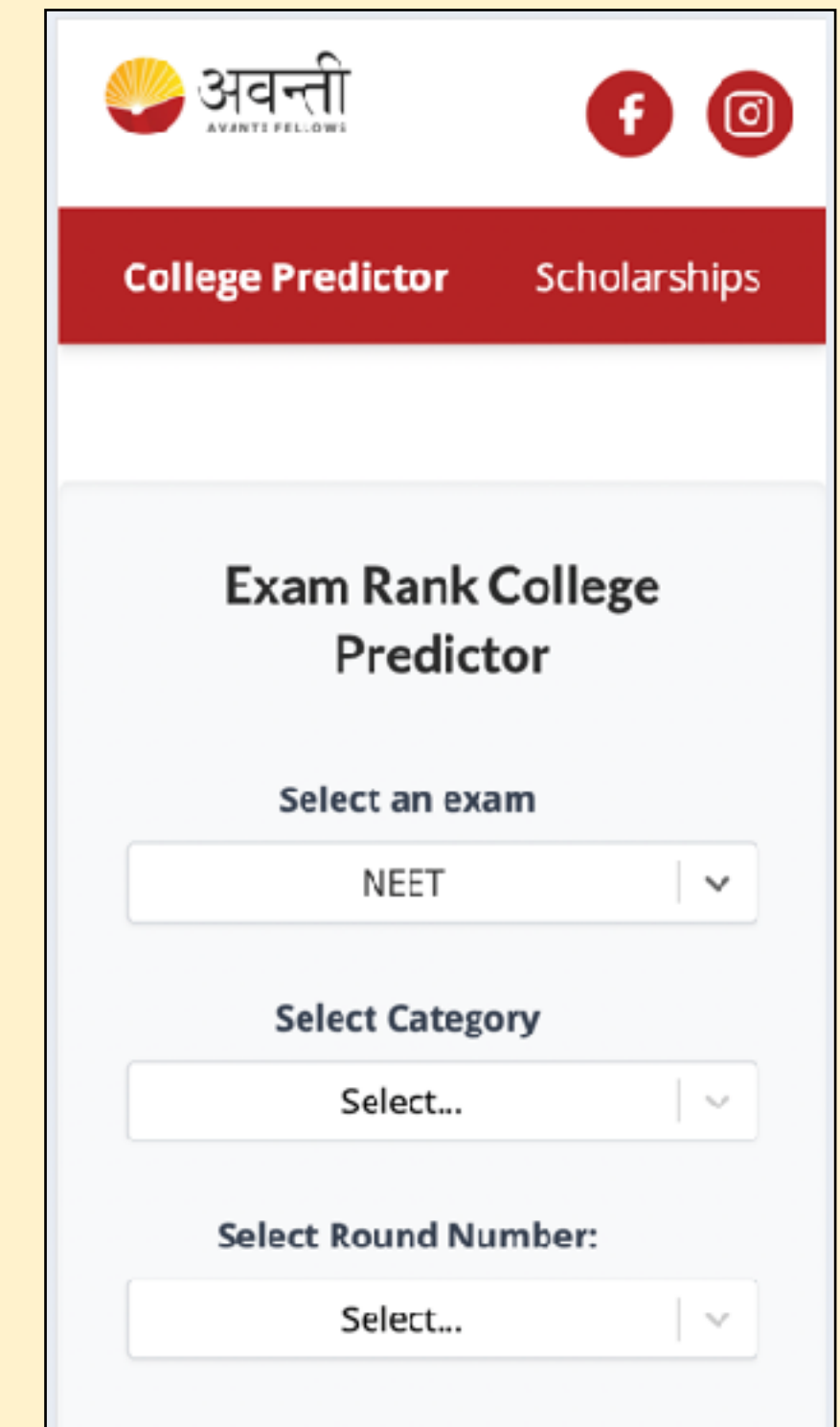Contributed by interns we found through the **Code for GovTech (C4GT)** program.

Tarunima Prabhakar: https://tarunima.com/index.html

Andy Matuschak. "Ethics of AI-based invention: a personal inquiry". (2024).

# Is Bold Action Irresponsible?
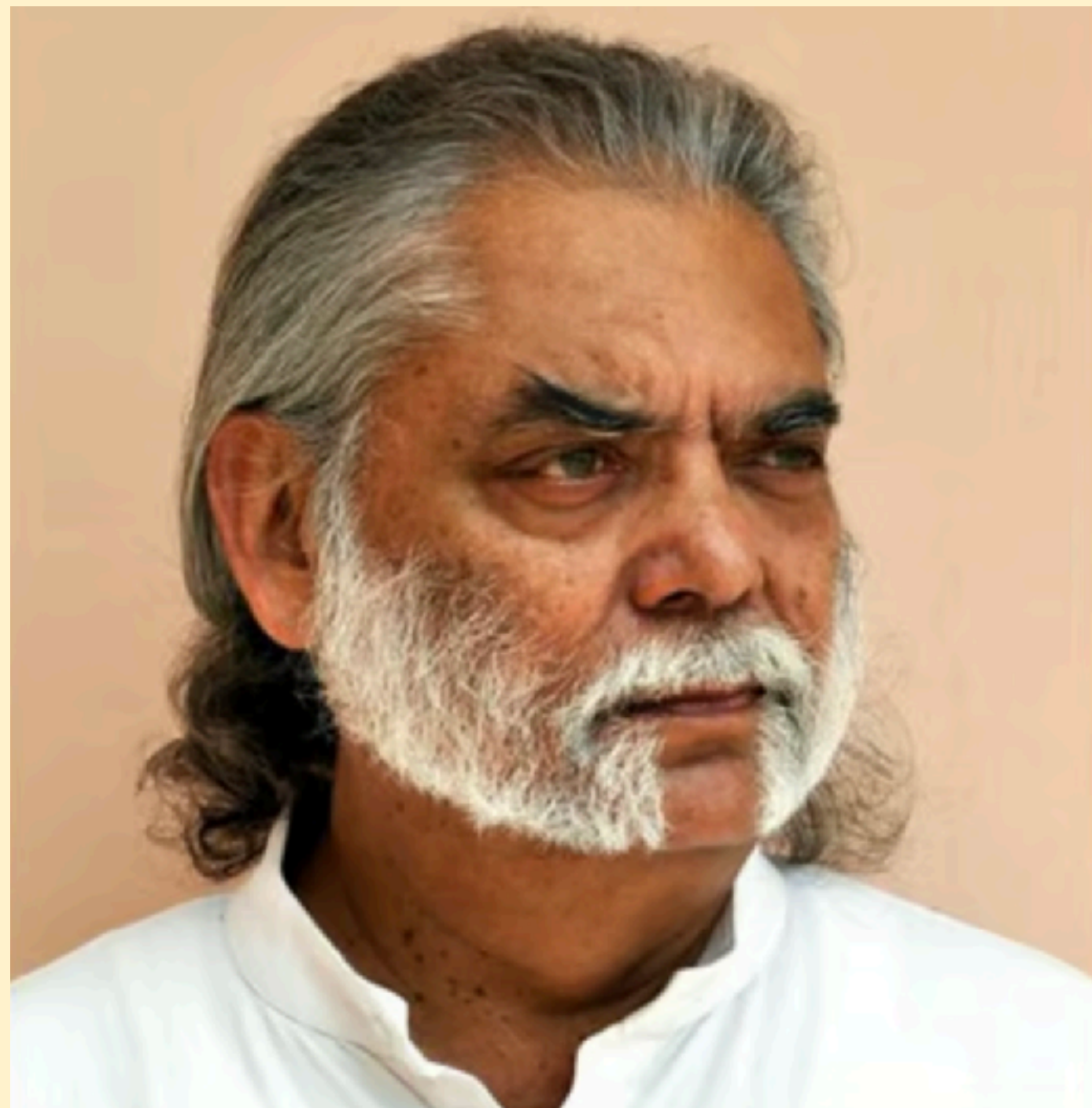


**Prof. Dinesh Mohan**
Founder, Transportation
Research and Injury Prevention
Programme (TRIPP), IITD



*Rapid Public Transportation*



*Surrender to the car lobby*

Prof. Subhasis Banerjee - https://thewire.in/urban/dinesh-mohan-obituary

TIWARI, GEETAM. "Metro Rail and the City: Derailing Public Transport." *Economic and Political Weekly*, vol. 48, no. 48, 2013, pp. 65–76. *JSTOR*, http://www.jstor.org/stable/23528925. Accessed 26 Nov. 2024.

# Is Bold Action Irresponsible?



EA / AI Risk

High
Impact

Responsible
Ethical

Irresponsible
Immoral

Low
Impact

Inaction
Dull, Idle
Slow

Mild Action

High  Action
Bold, Creative
Rapid

Bola Action

Inaction

Irresponsible
Immoral

Responsible
Ethical
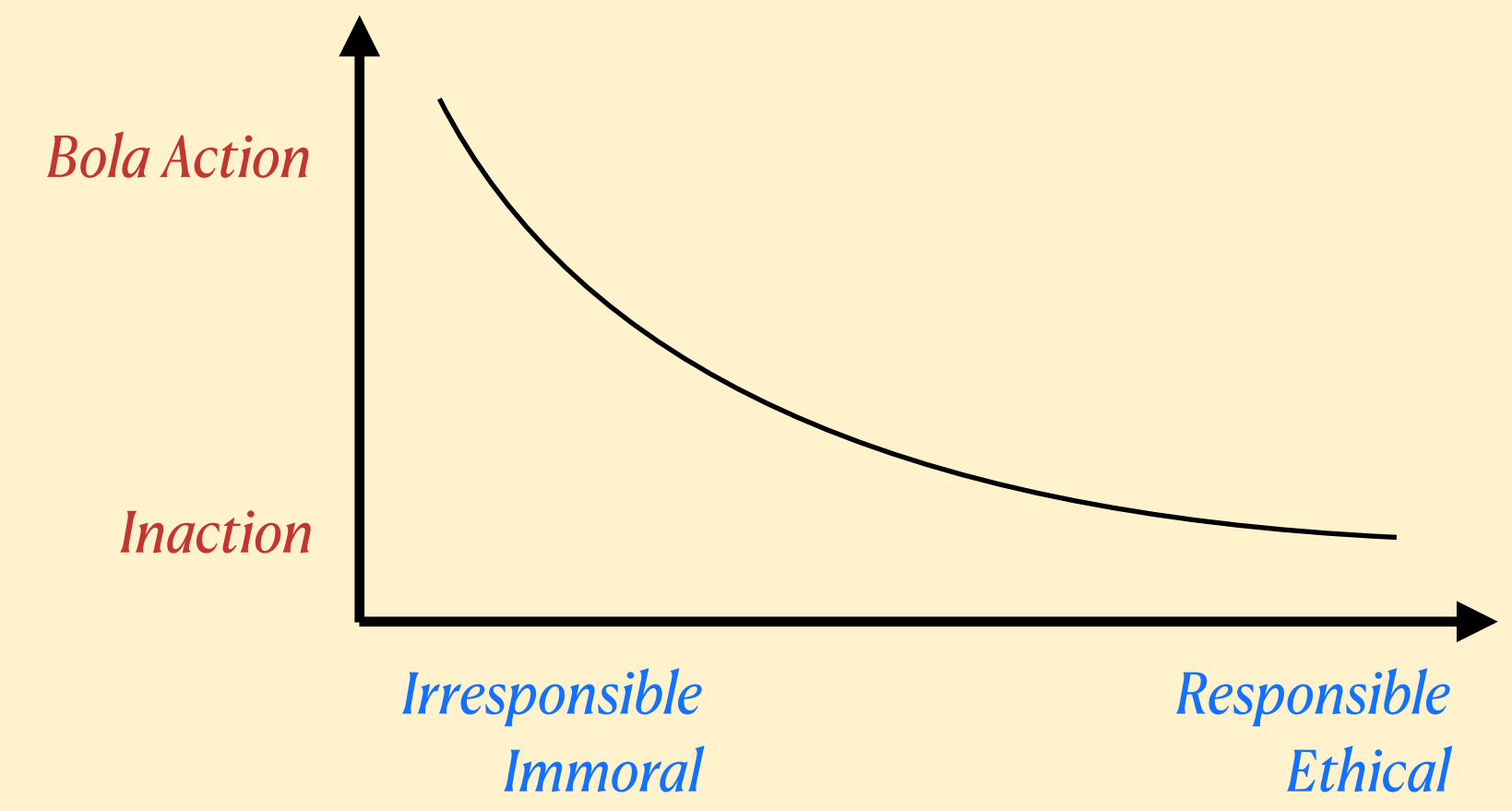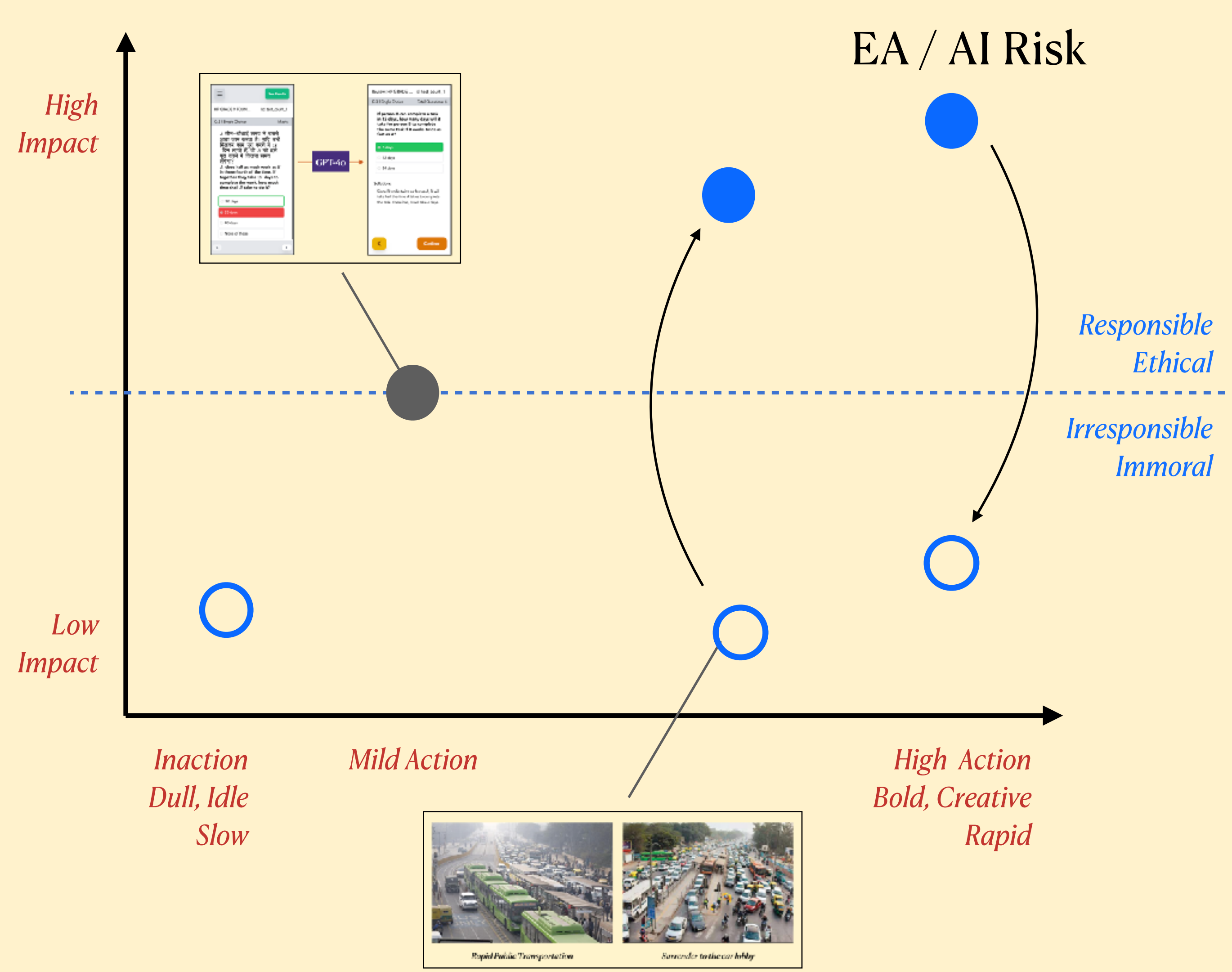
Can we alter this perception?

Bola Action

Inaction

Irresponsible
Immoral

Responsible
Ethical
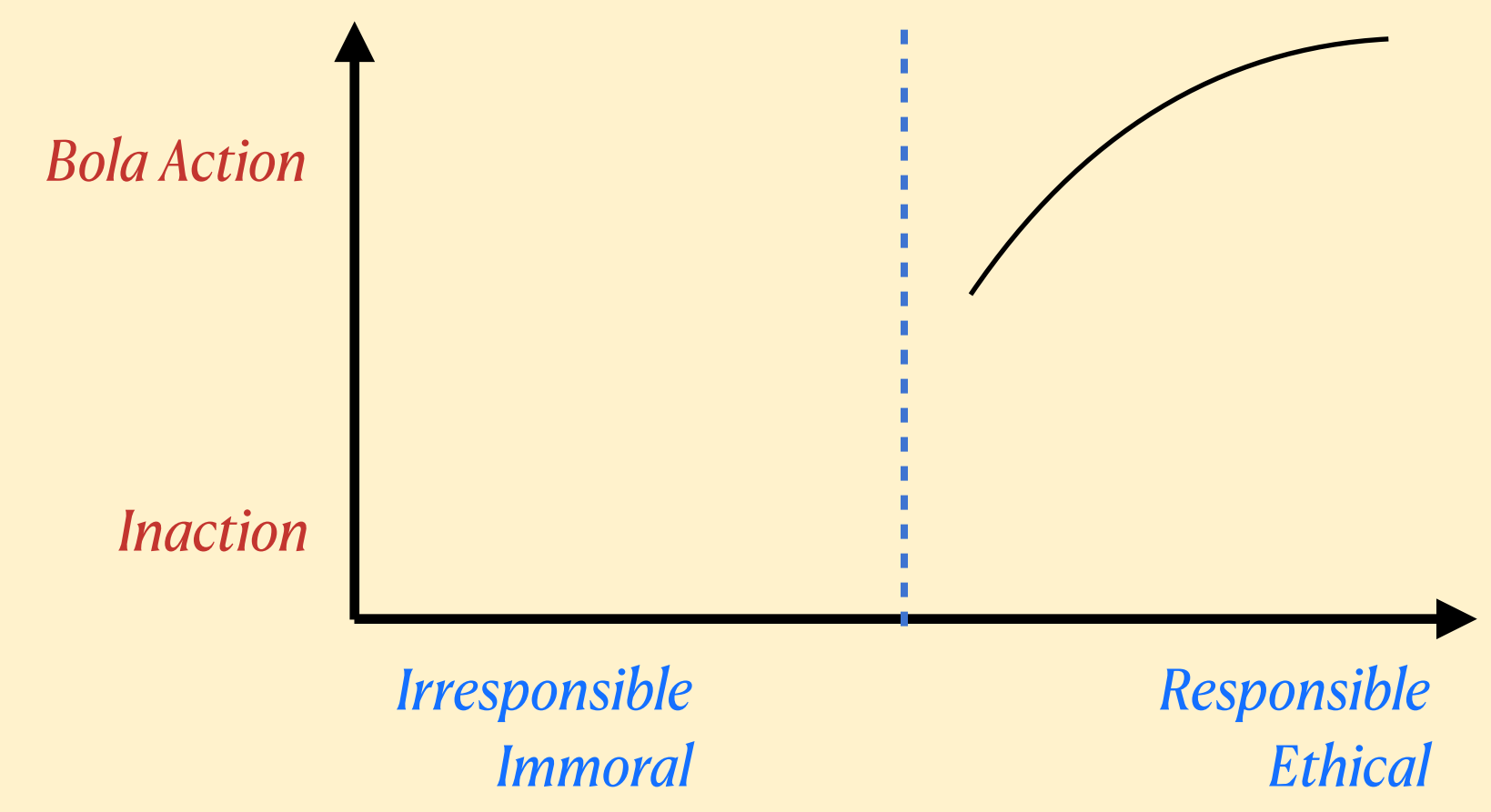
# Broad Questions

(1) Does impact blur our sense of responsibility?

(2) Are we too critical, pausing action unnecessarily?

(3) Or too hysterical, rushing into AGI risk debates?

(4) Is this moral calculus too nauseating for tech workers?

Meta Social Good

**RAIL**

DG

Avanti

Artpark

Armman

.
.

*Values* →

Creative Social Good Tech

*Users*
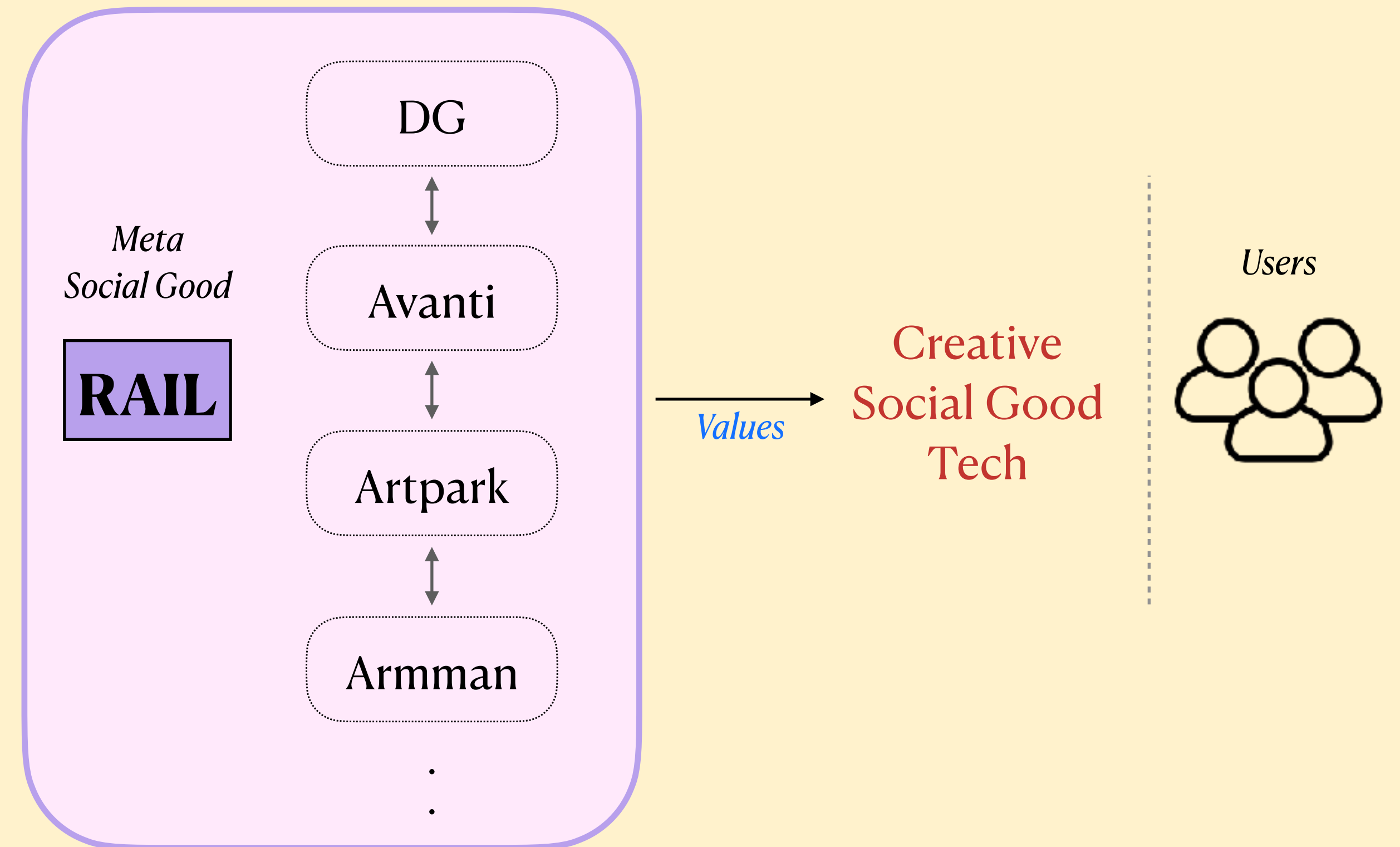
Hopefully, initiatives like RAIL can simplify this calculus and inspire bold, creative action.

Seth, Aaditeshwar. Technology and (dis) empowerment: A Call to Technologists. Emerald Publishing Limited, 2022.

# Thank You!

Slides available
at suryabulusu.github.io