

Economics of Global Challenges

# AI Opportunities for Global South

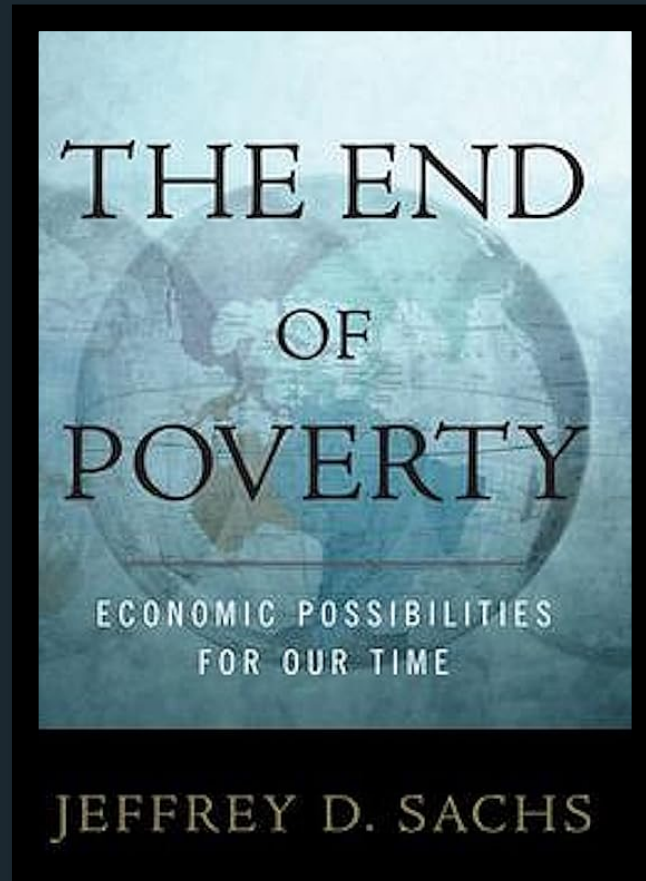
Webcast David Yanagizawa-Drott  
**December 4, 2024**



# AI Opportunities for Global South



David Yanagizawa-Drott



Does AI provide new economic possibilities for our time?

*No, it will  
take at least  
10 years!*

*No, it's  
already here!  
It arrived in  
2022.*

*No, we've  
had it for at  
least 40  
years*

AI is coming.

Let's just call AI HQ.

They must know.

AI HQ





**Sam Altman**  @sama · May 15  
**feeling the AGI today** 

This must be a typo.



**Sam Altman**  @sama · Oct 1

Replying to @sama

excited **to** make even more progress from this devday **to** the next one.

the **path to agi** has never felt more clear.

The path to what is clear?



# OpenAI Charter

Our Charter describes the principles we use to execute on OpenAI's mission.

This document reflects the strategy we've refined over the past two years, including feedback from many people internal and external to OpenAI. The timeline to AGI remains uncertain, but our Charter will guide us in acting in the best interests of humanity throughout its development.

OpenAI's mission is to ensure that artificial general intelligence (AGI)—by which we mean highly autonomous systems that outperform humans at most economically valuable work

benefits all of humanity. We will attempt to directly build safe and beneficial AGI, but will also consider our mission fulfilled if our work aids others to achieve this outcome. To that end, we commit to the following principles:

*Highly autonomous  
systems that outperform  
humans at most  
economically valuable  
work*

# OpenAI Charter

Our Charter describes the principles we use to execute on OpenAI's mission.

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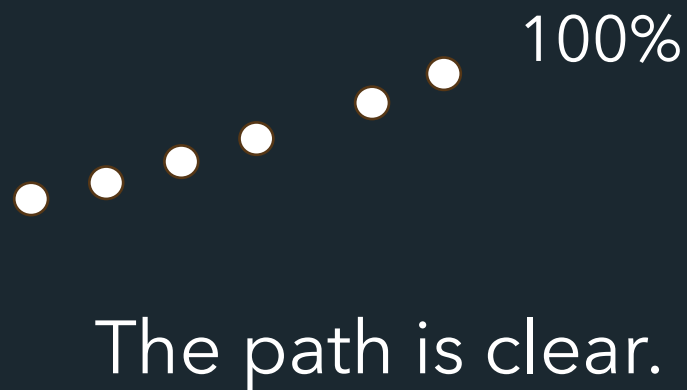
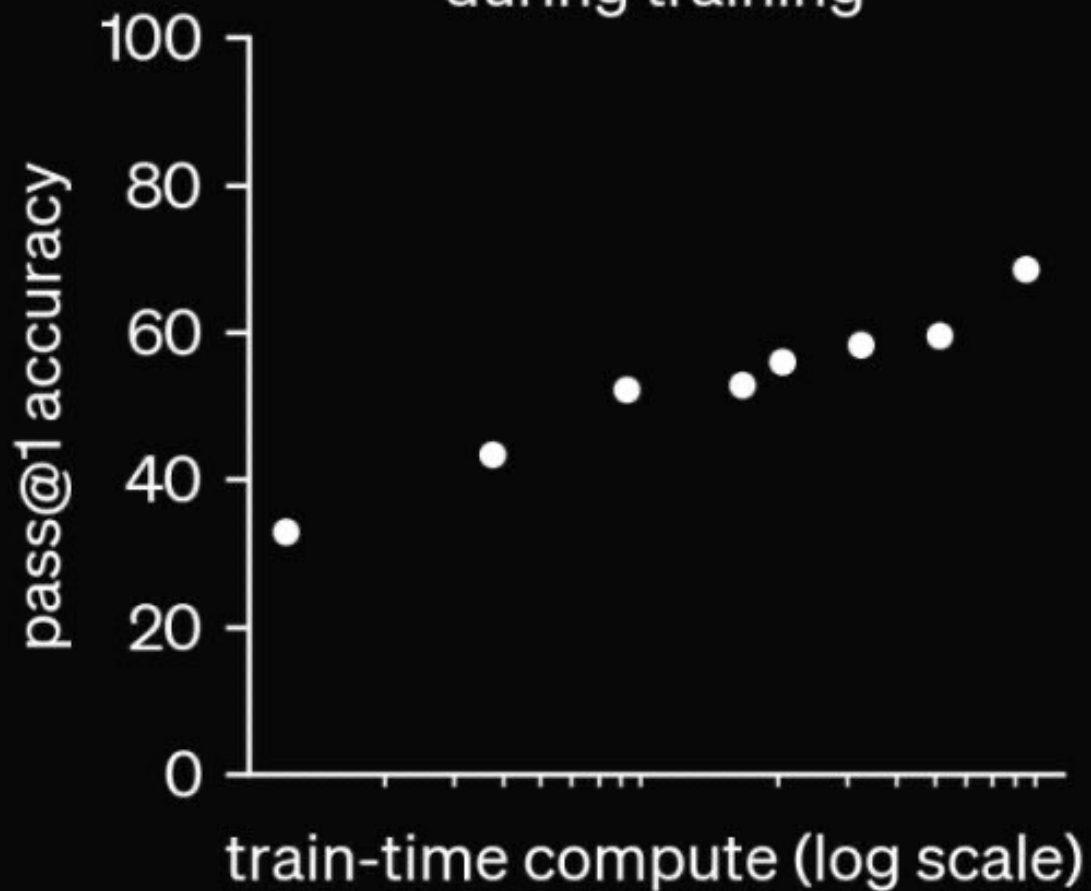
OpenAI's mission is to ensure that artificial general intelligence (AGI)—by which we mean **highly autonomous systems that outperform humans at most economically valuable work**—benefits all of humanity. We will attempt to directly build safe and beneficial AGI, but will also consider our mission fulfilled if our work aids others to achieve this outcome. To that end, we commit to the following principles:

*They will ensure it benefits all of humanity, it says.*

So, AGI is coming, not AI.

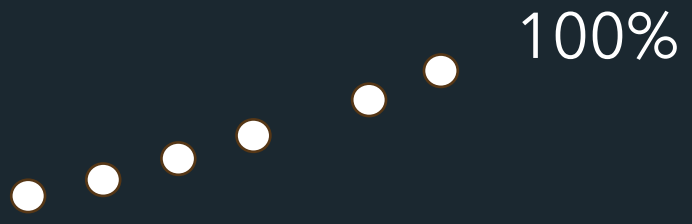
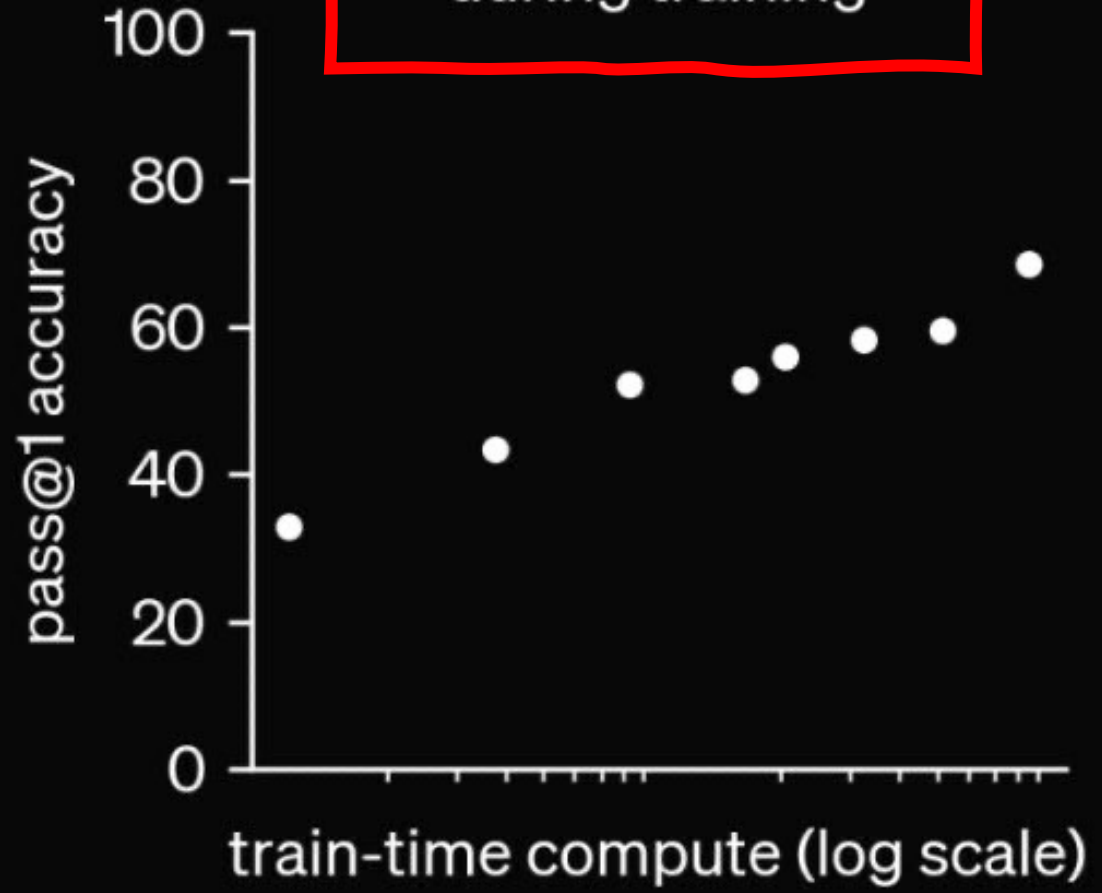
How do they know that?

o1 AIME accuracy during training



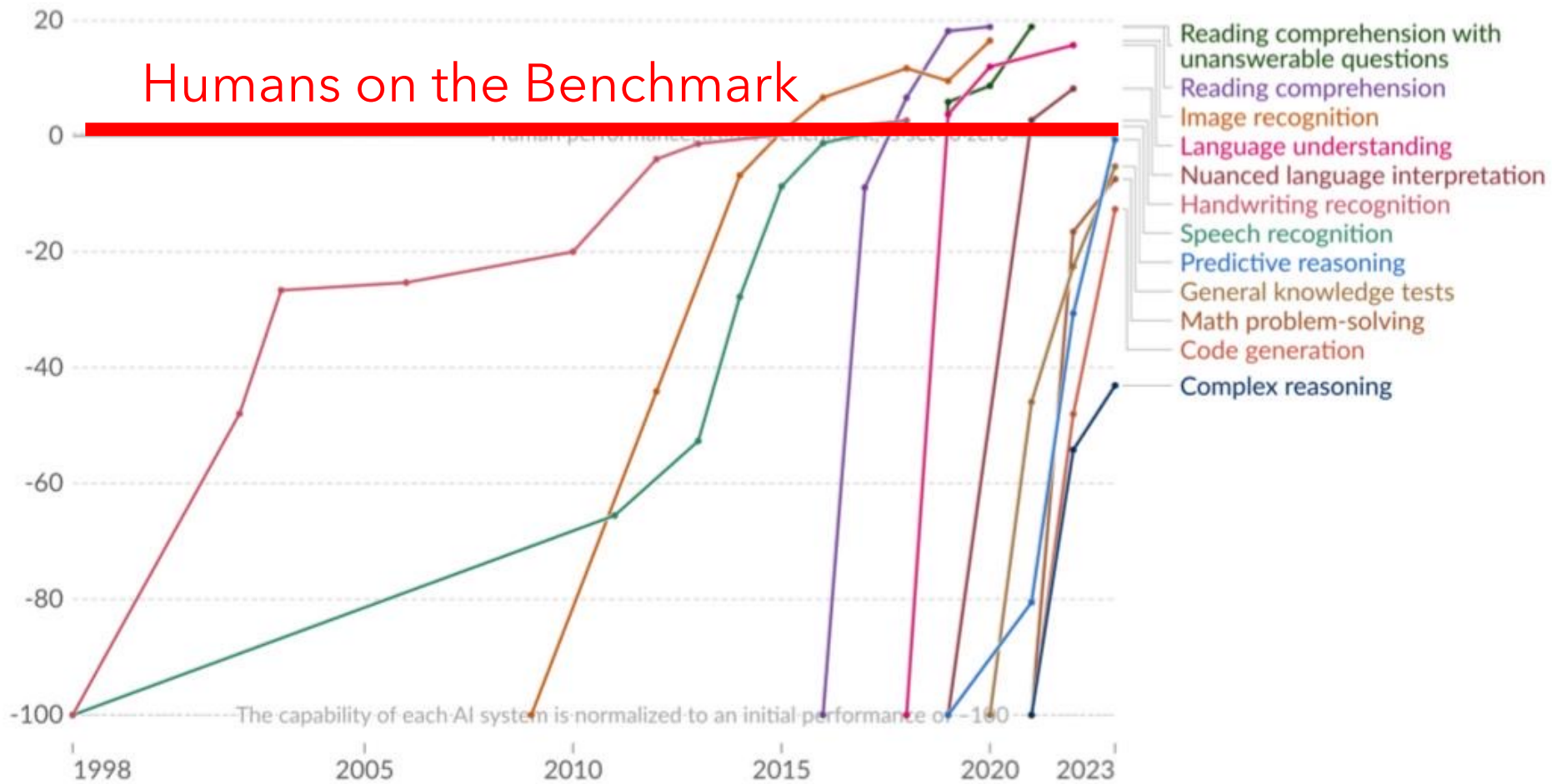
Wait, what is **Y**?

o1 AIME accuracy during training



The path is clear.

## Humans on the Benchmark



Data source: Kiela et al. (2023)

OurWorldInData.org/artificial-intelligence | CC BY

Note: For each capability, the first year always shows a baseline of -100, even if better performance was recorded later that year.

Wow.

So, when is AGI here?

@tsarnick



scale to \$100 billion range



get there by 2026 or 2027.

@tsarnick



but I think 10 years is about right.



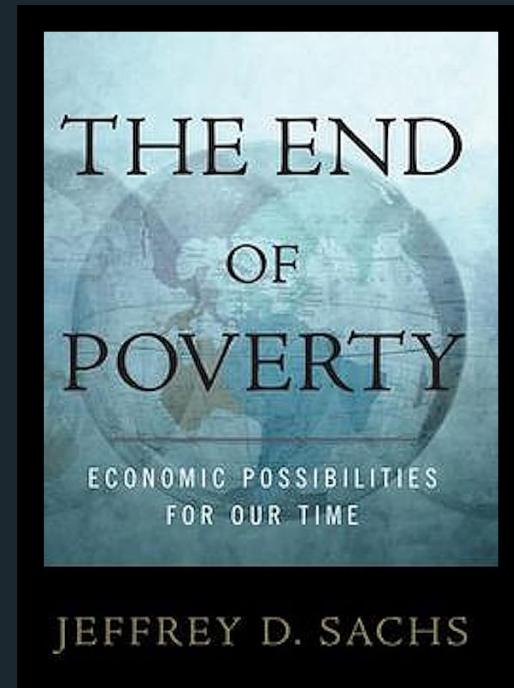
I get it now.

AGI is coming, eventually.

And they will ensure all of humanity will benefit.

The path is clear.

AI → AGI →



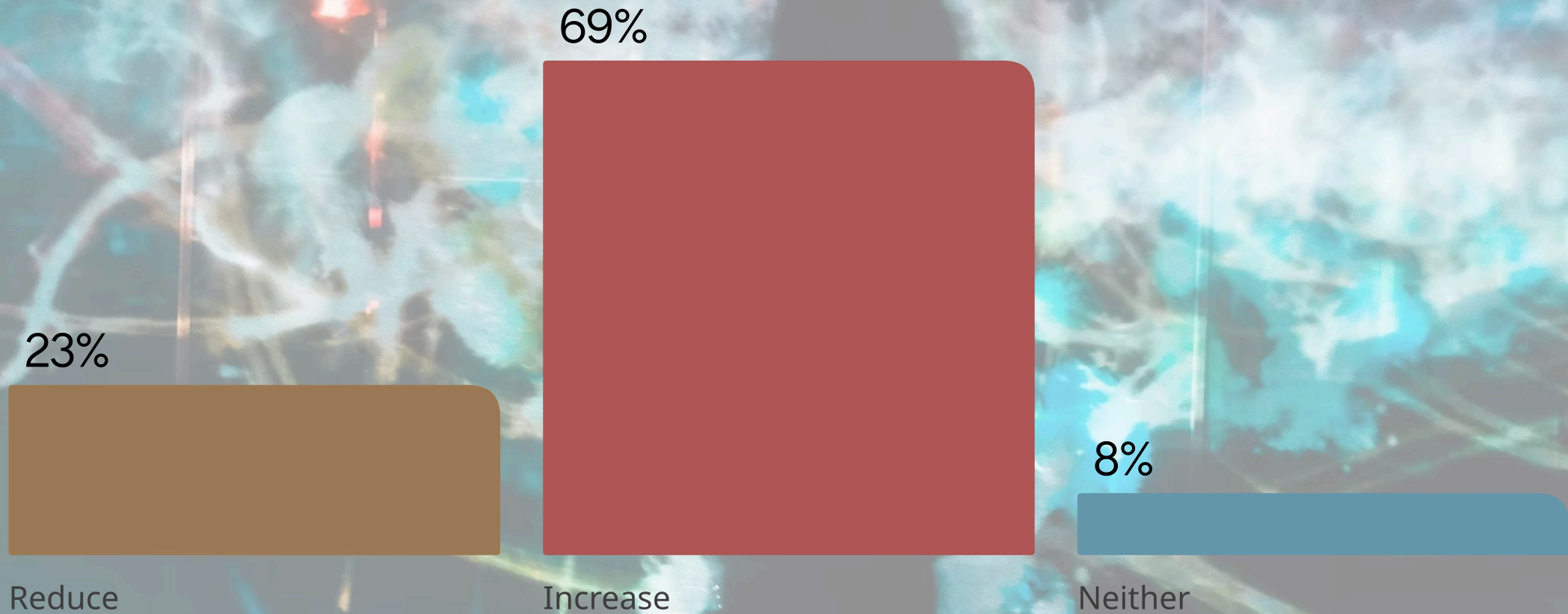


## AGI

*"highly autonomous systems that outperform humans at most economically valuable work"*

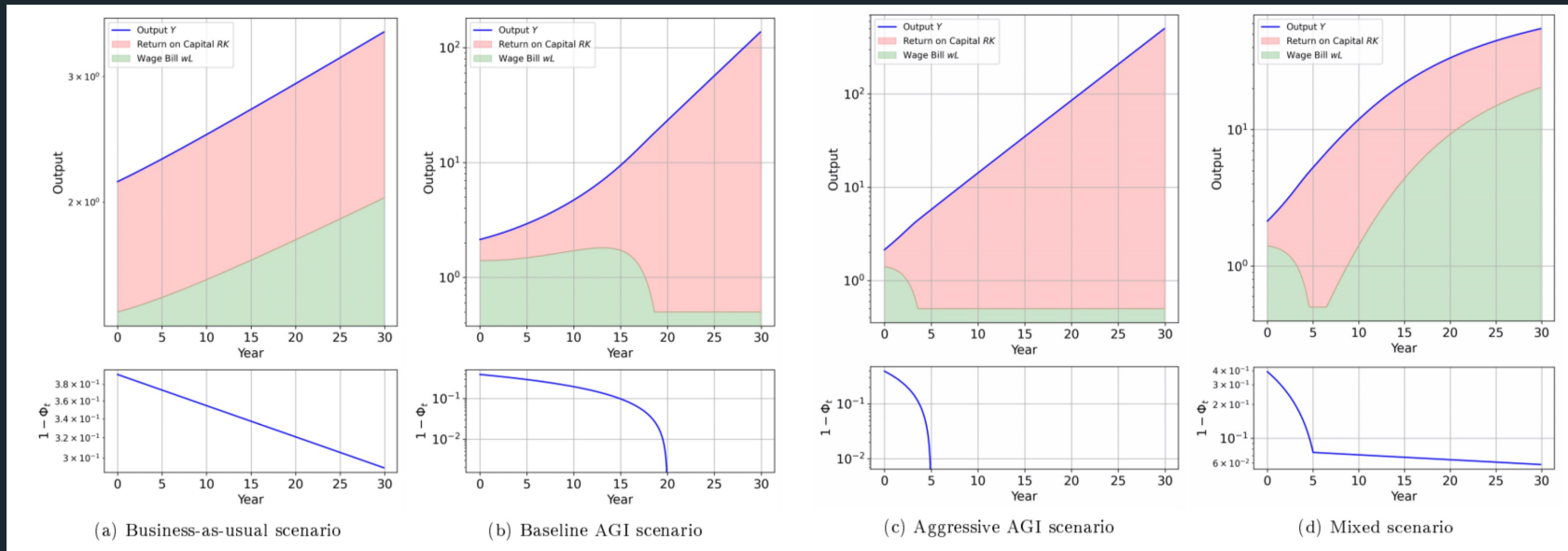
*Do you think AGI would reduce or increase the economic divide between the Global North and Global South?*

# Do you think AGI would reduce or increase the economic divide?



Maybe economic theory can tell us  
whether it will benefit all of humanity?

# Oh, anything is possible. In theory.



Korinek & Suh, 2024

The future is too uncertain.

Let's just wait for AGI.

An alternative path?



# One way to think about it...

1. “Effective compute cost” will continue to plummet, and ease of access will increase
2. A forward-looking strategy should complement the expected advancements
3. We should build, test and explore tailored solutions to local problems

Fine, but what is AI then?

It's just a machine, like a tractor.

A machine.



A machine.

A human.



A machine.

A human.

An environment.



# Exporting technology



It's not like a tractor.



Tractors can never explore.

Tractors can never learn.

Tractors cannot have goals.

Tractors cannot be locally tailored.

AI can.

OK, it's not a tractor.

What is it?



WIKIPEDIA  
The Free Encyclopedia

## Artificial intelligence

*methods and software that enable machines to **perceive** their environment and use **learning** and intelligence to take **actions** that maximize their chances of achieving defined **goals***

AI = GAP learning systems.

**G**oals      What goals to maximize?

**A**ctions      What actions can it take?

**P**erception      What can it observe?

What the goal of any AI should be is not obvious, in any context.

But every algorithm has an objective function, a goal it is trained for.



This one was trained to achieve some goal.

Do you know what it is?

# An example

Ministry of  
Health in  
Ghana



There are many possible goals.



ROI







**1** NO POVERTY



**2** ZERO HUNGER



**3** GOOD HEALTH AND WELL-BEING



**4** QUALITY EDUCATION



**5** GENDER EQUALITY



**6** CLEAN WATER AND SANITATION



**7** AFFORDABLE AND CLEAN ENERGY



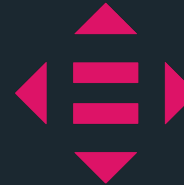
**8** DECENT WORK AND ECONOMIC GROWTH



**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE



**10** REDUCED INEQUALITIES



**11** SUSTAINABLE CITIES AND COMMUNITIES



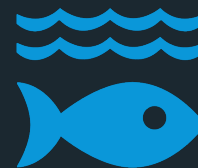
**12** RESPONSIBLE CONSUMPTION AND PRODUCTION



**13** CLIMATE ACTION



**14** LIFE BELOW WATER



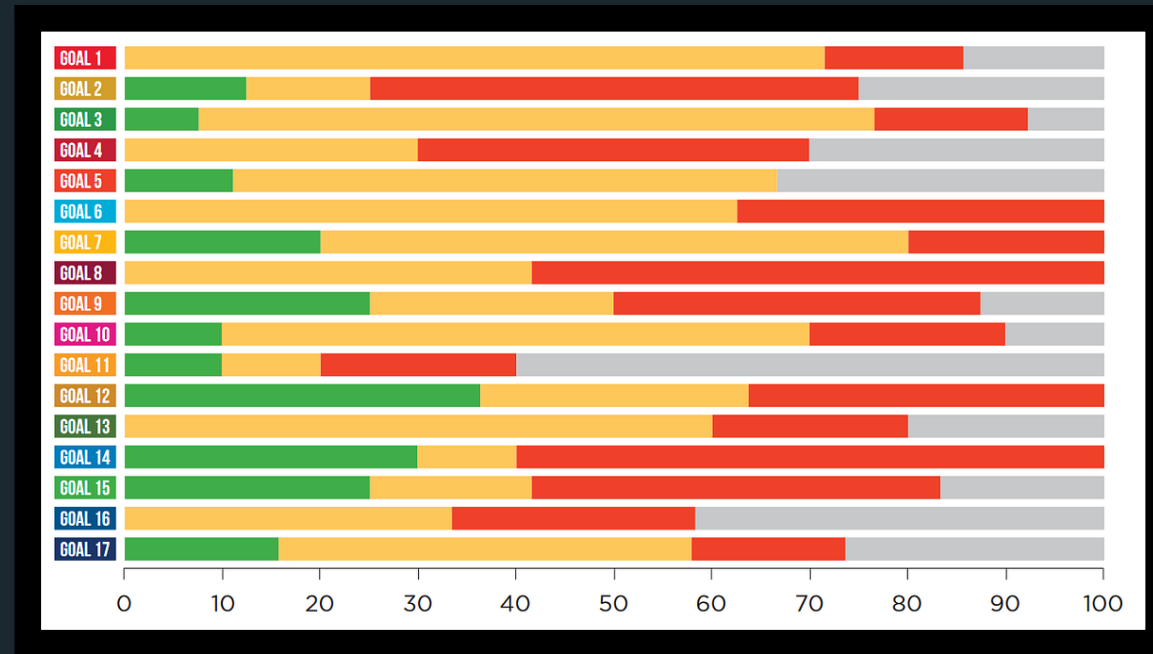
**15** LIFE ON LAND



**16** PEACE, JUSTICE AND STRONG INSTITUTIONS

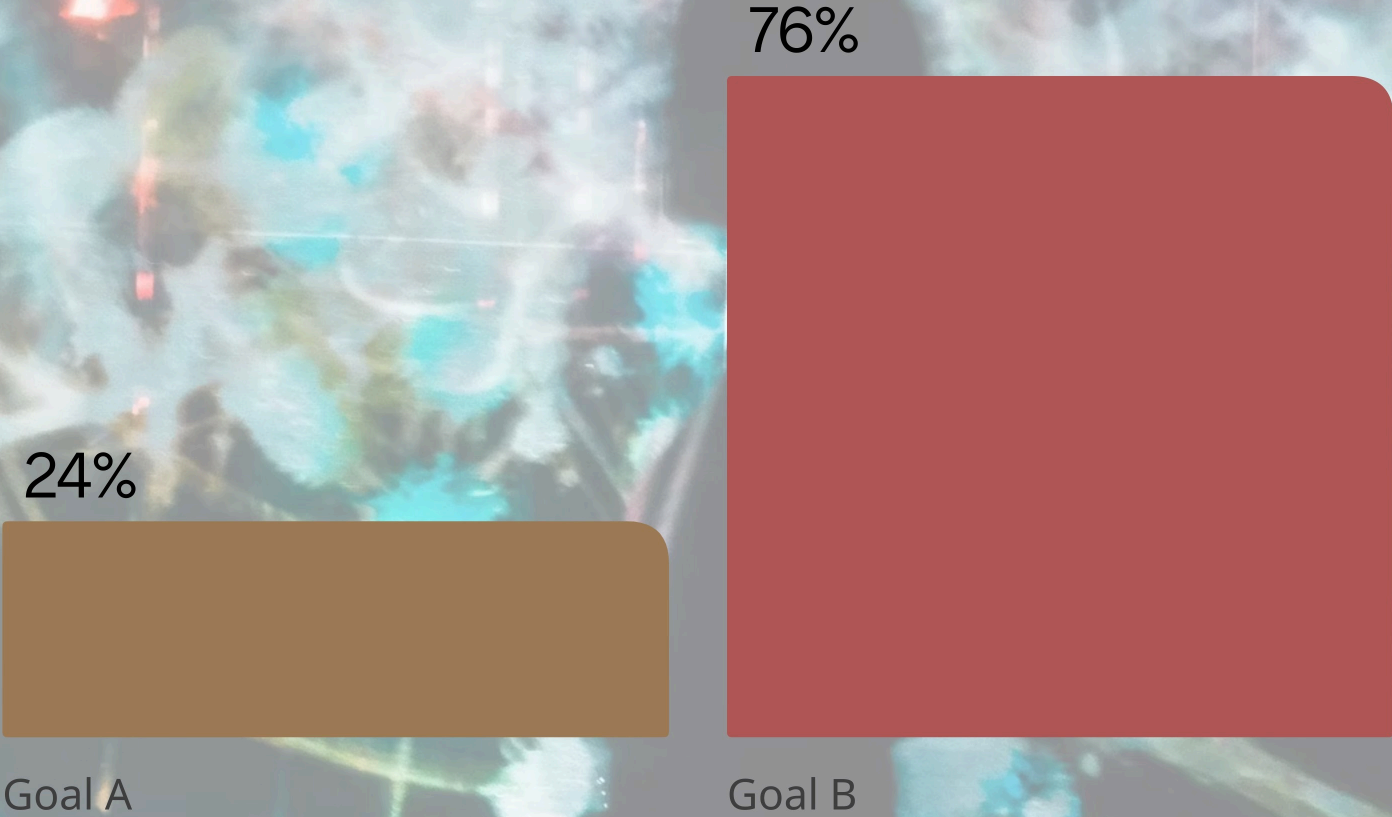


# Quantitative benchmarks (Y) exist



- On track or target met
- Fair progress, but acceleration needed
- Stagnation or regression
- Insufficient data

# Which goal is more appealing to you?





Ministry of Health in Ghana

## Goal A

*"A highly autonomous system that outperforms doctors, nurses and administrators in their work"*

AGI  
Goal

## Goal B

*"A system that interacts with the doctors, nurses and people and learns how to improve health outcomes in the population"*

3 GOOD HEALTH  
AND WELL-BEING



Goals

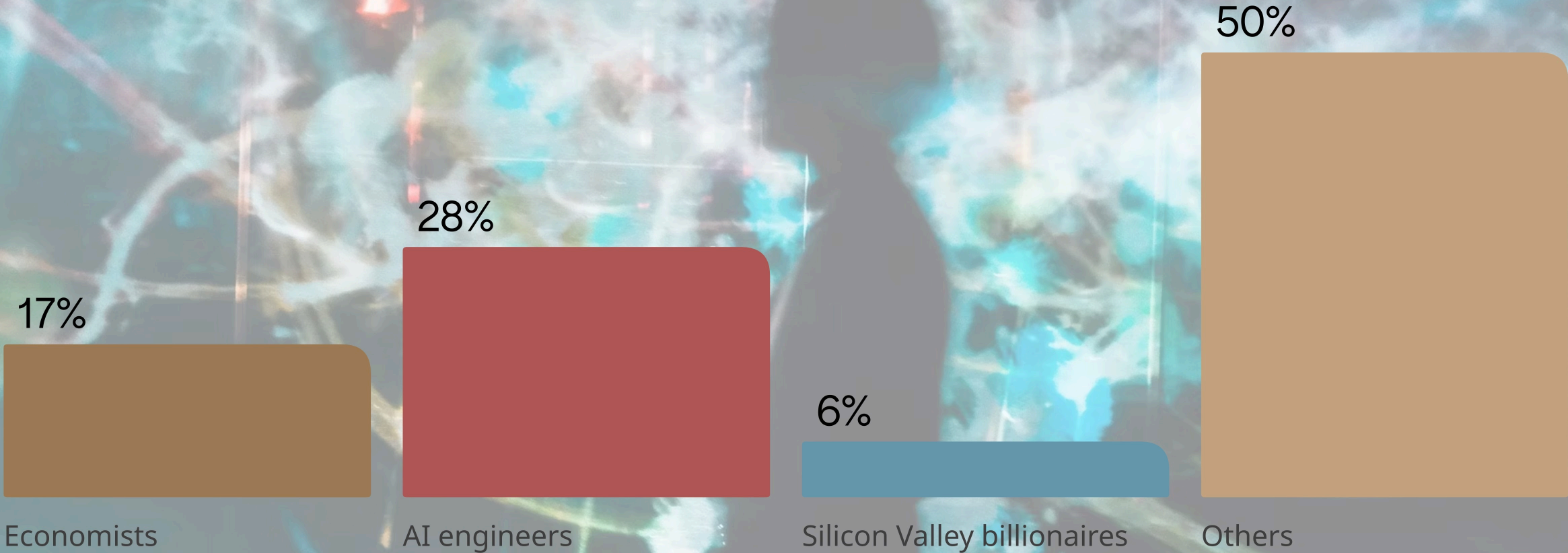
Actions

Perception

Someone needs to set its goal.

Who?

# Who should set the goal of AI?





Ministry of Health in Ghana

## Goal A

*"A highly autonomous system that outperforms doctors, nurses and administrators in their work"*

## Goal B

*"A system that interacts with the doctors, nurses and people and learns how to improve health outcomes in the population"*

Suppose they decide on Goal B.

What's next?

Goals

Actions

Perception

## Goal B

*"A system that interacts with the doctors, nurses and people and learns how to improve health outcomes in the population"*



## Goal

*"A system that interacts with the doctors, nurses and people and learns how to improve health outcomes in the population"*

## Actions

What actions are allowed?

## Perceptions

What data does the AI system have access to?

# Goal

*"A system that interacts with the doctors, nurses and people and learns how to improve health outcomes in the population"*

# Actions

*Decide on what actions the AI system are allowed to take*

- *Medical advice?*
- *Medical decisions?*
- *Training of nurses?*
- *Hire & Fire people?*
- *Set prices? Wages?*
- *How exactly???*

# Perceptions

# Goal

*"A system that interacts with the doctors, nurses and people and learns how to improve health outcomes in the population"*

# Actions

*Decide on what actions the AI system are allowed to take*

- *Medical advice?*
- *Medical decisions?*
- *Training of nurses?*
- *Hire & Fire people?*
- *Set prices? Wages?*
- *How exactly???*

# Perceptions

*Decide on what data the AI system has access to*

- *Medical outcomes?*
- *Decisions by doctors?*
- *Absenteeism?*
- *Private information?*
- *Etc.*

Seems complicated.

Let's just wait for AGI.

We'll tell it to figure it out.

It will be like a super smart ChatGPT

What about that alternative path?

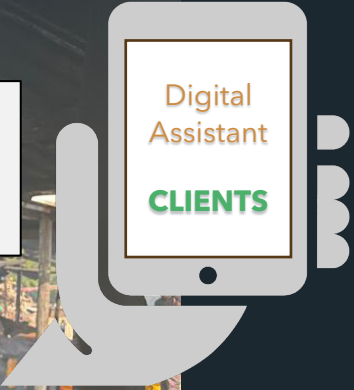
Example:

# Microcredit in sub-Saharan Africa



**Microcredit  
agents**

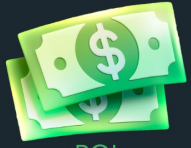
**Loan  
Applicants**



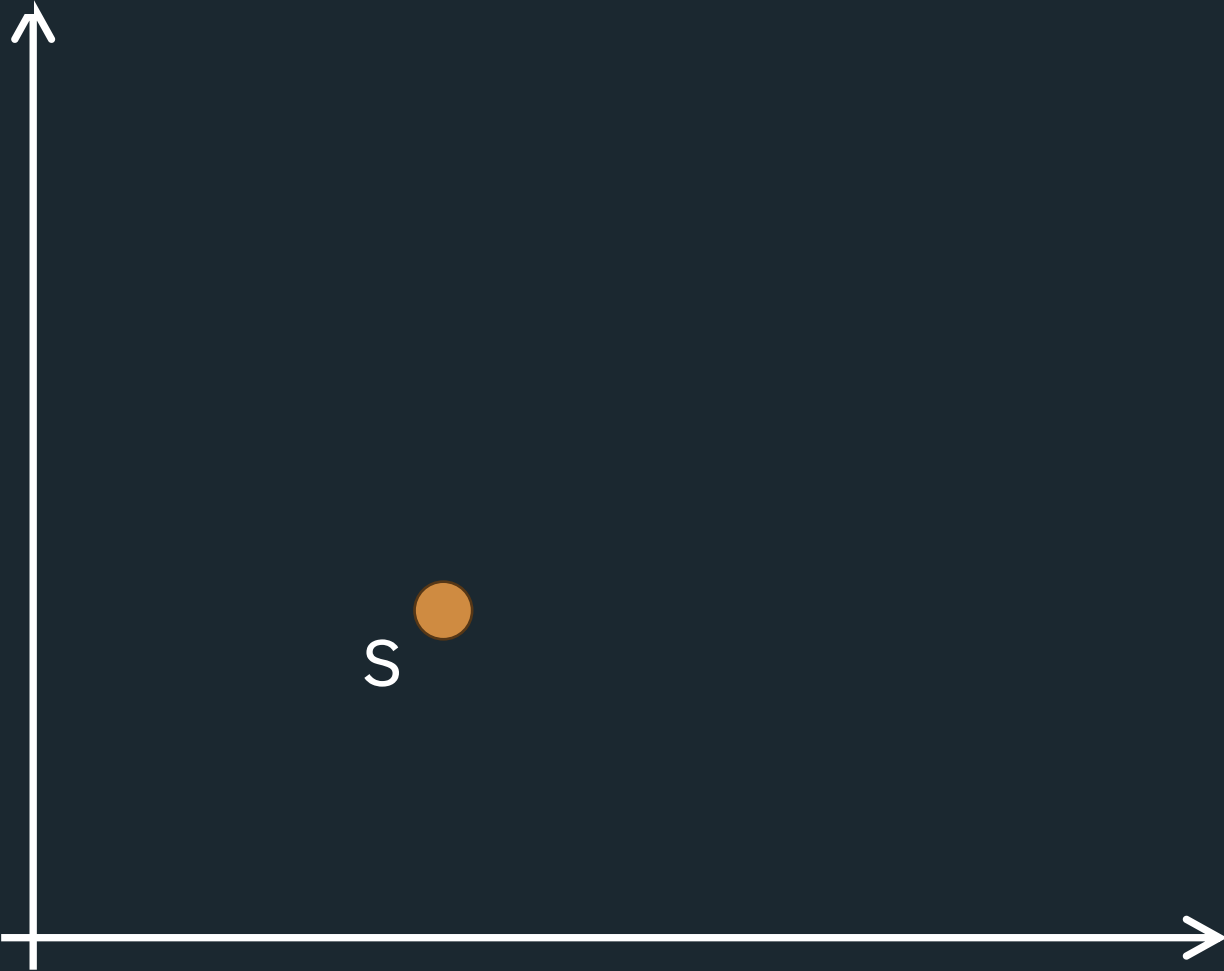


What should  
the AI system  
learn to do?





ROI

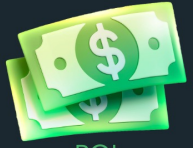


What should the AI system learn to do?

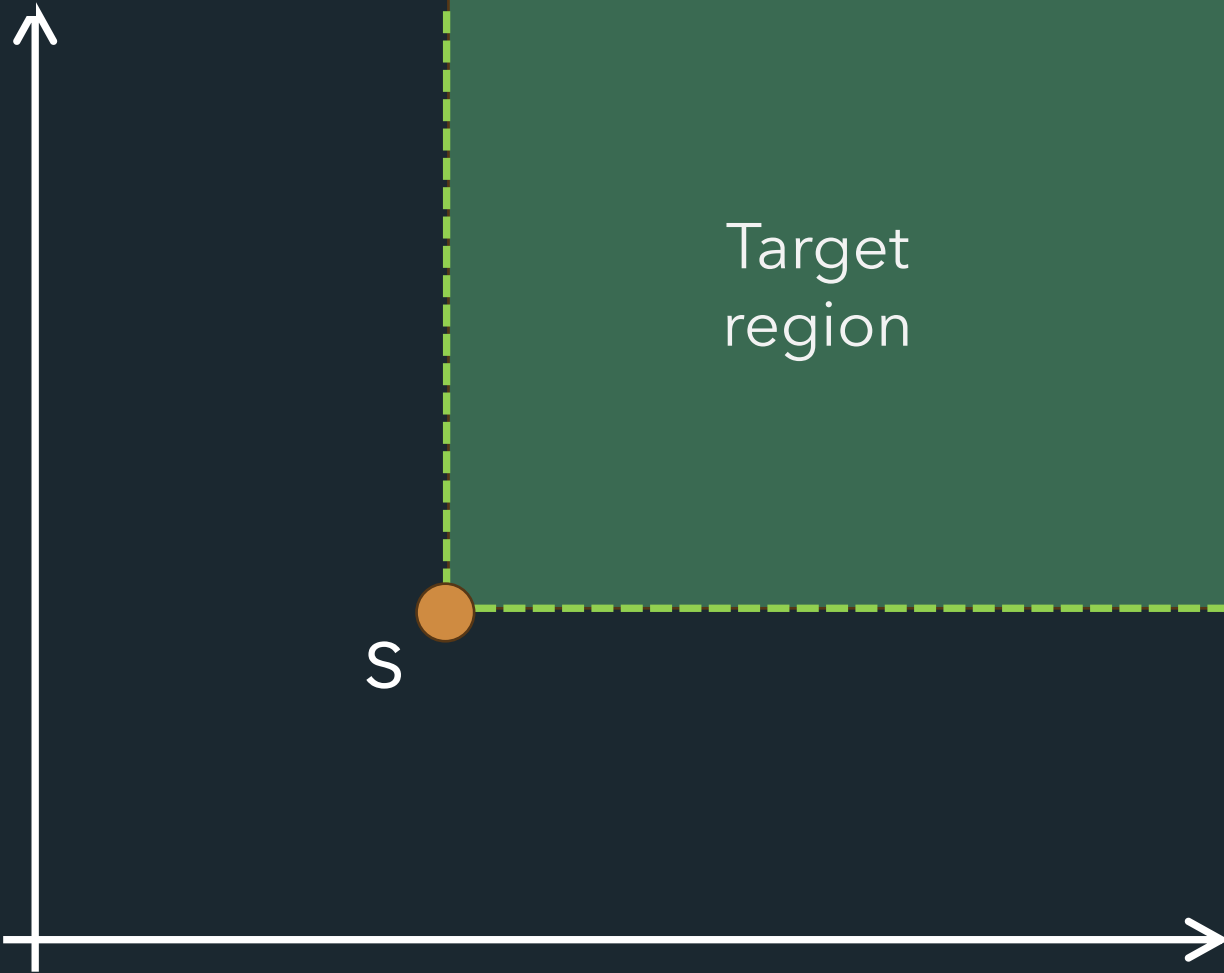
5 GENDER EQUALITY







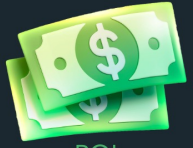
ROI



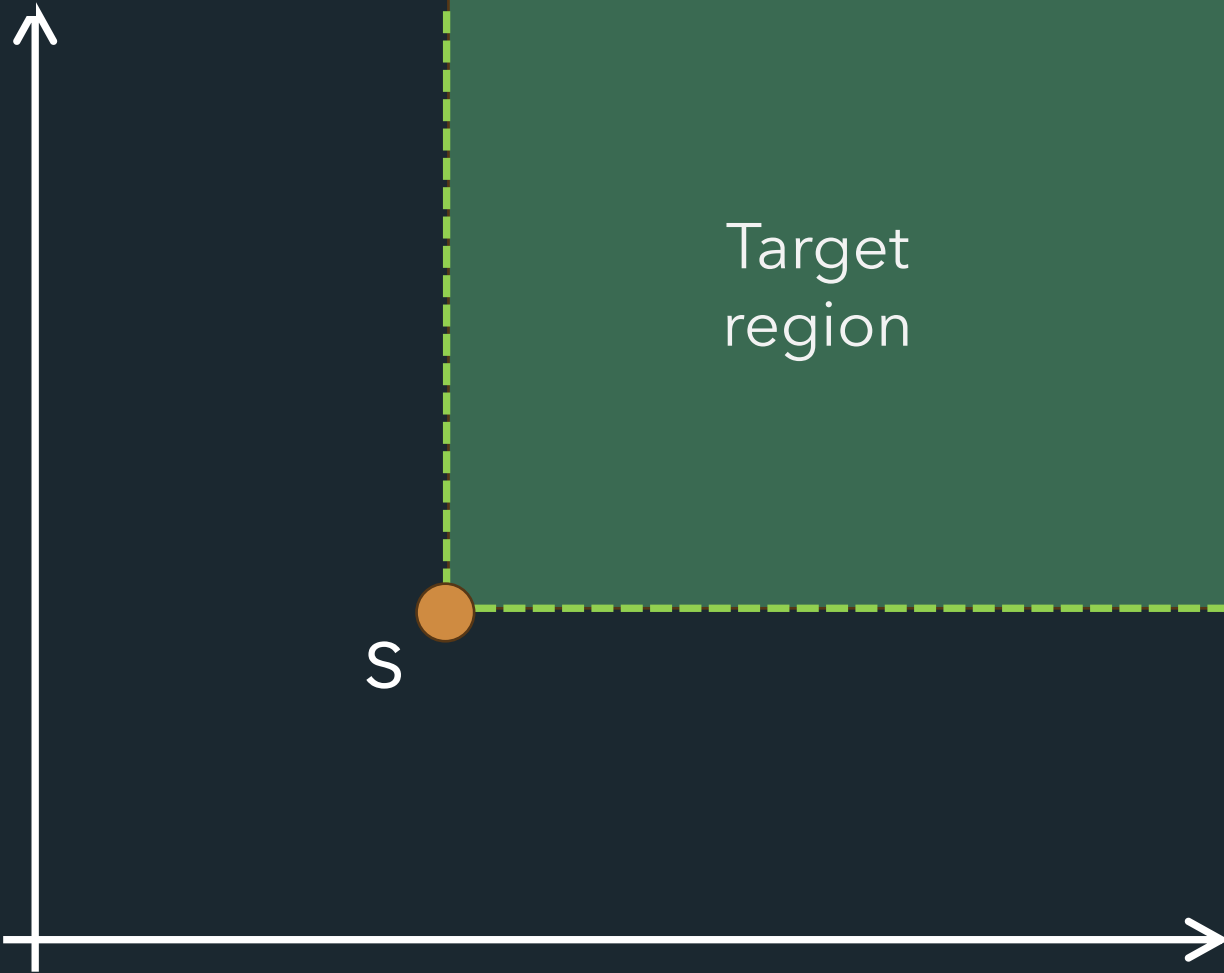
What should the AI system learn to do?

5 GENDER EQUALITY





ROI



An Action-Space  
Exploration  
Problem!

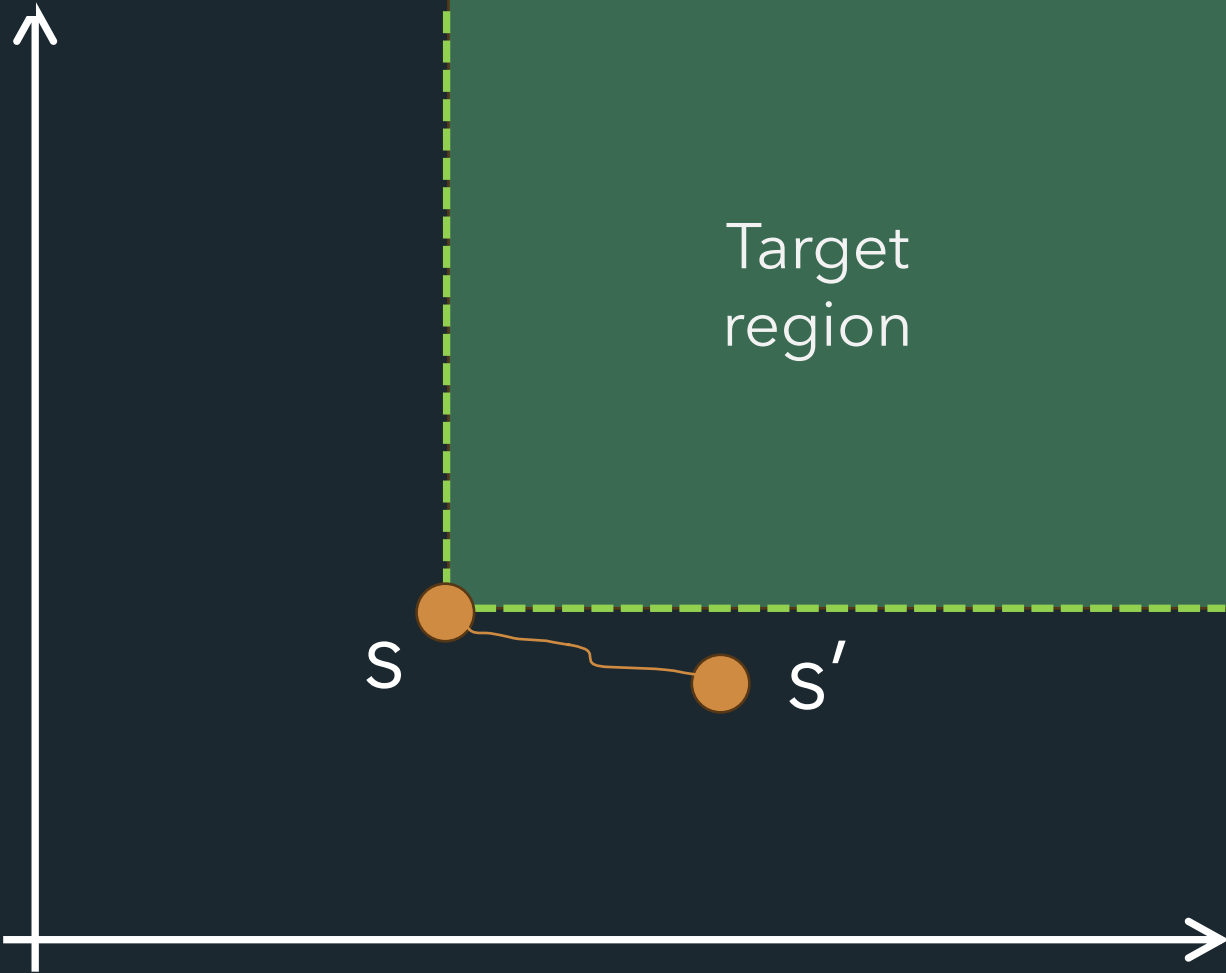
$$p(s', r | s, a)$$

5 GENDER  
EQUALITY





ROI



Feedback

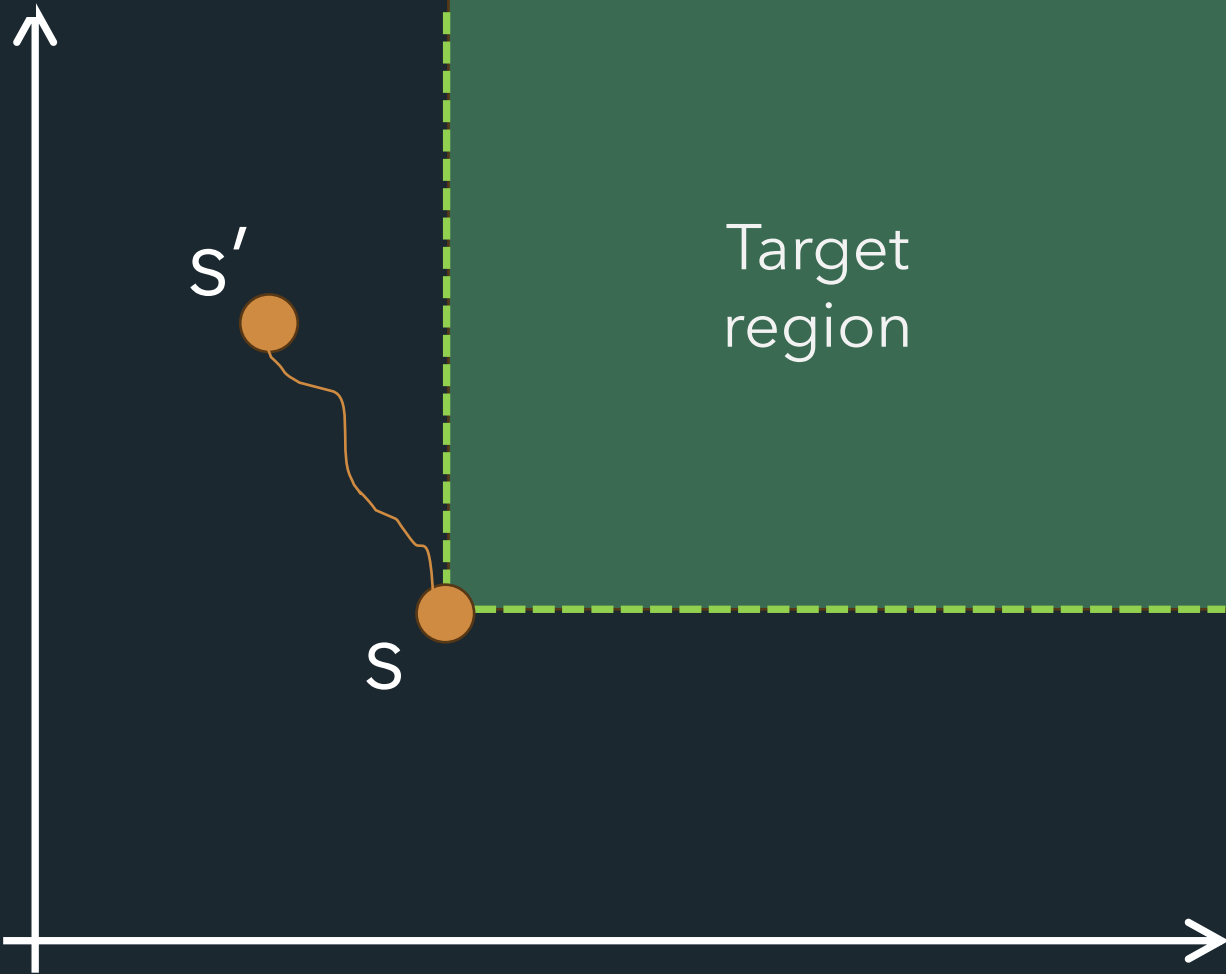
**Fail**

5 GENDER EQUALITY





ROI



Feedback

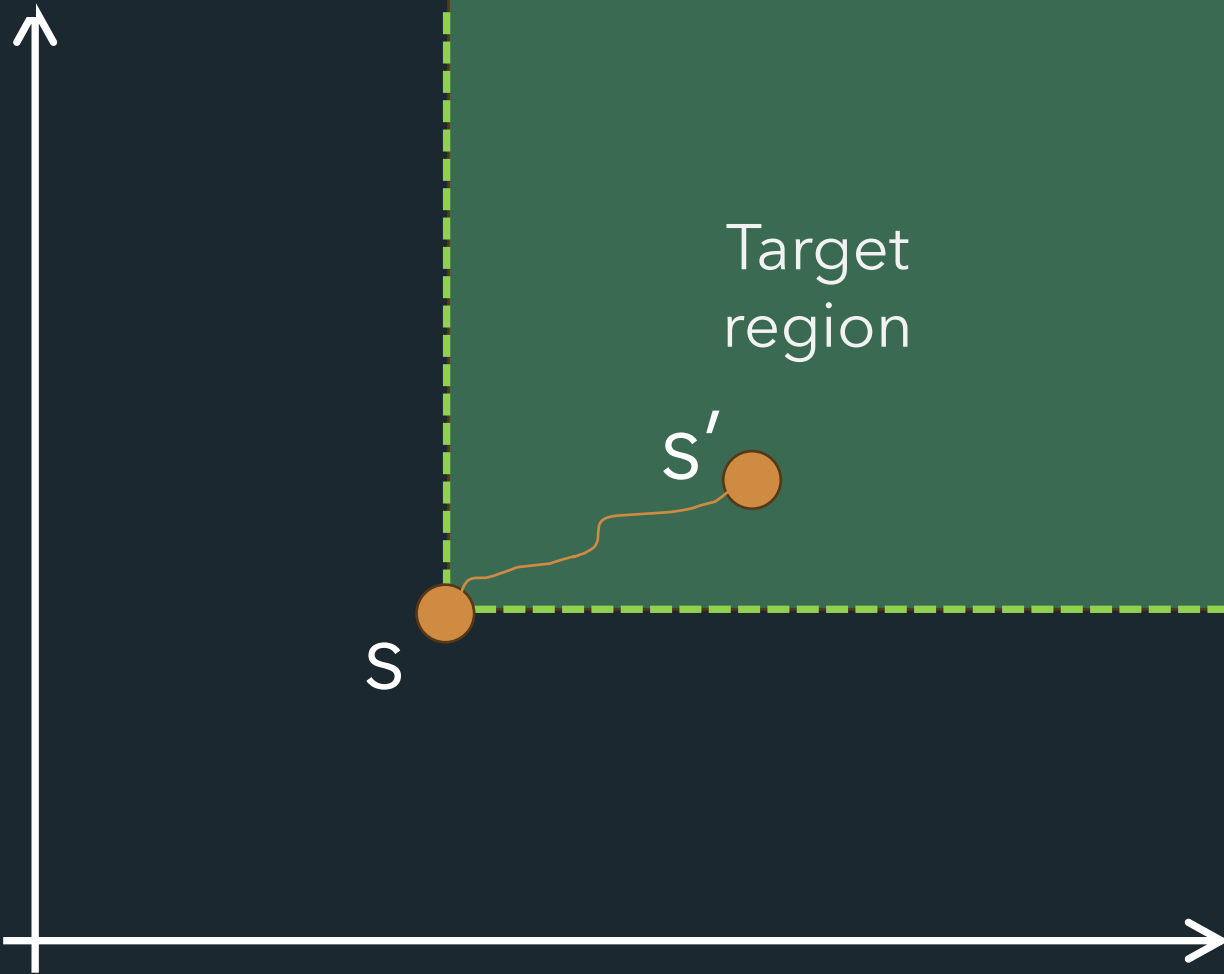
**Fail**

5 GENDER EQUALITY





ROI



Feedback

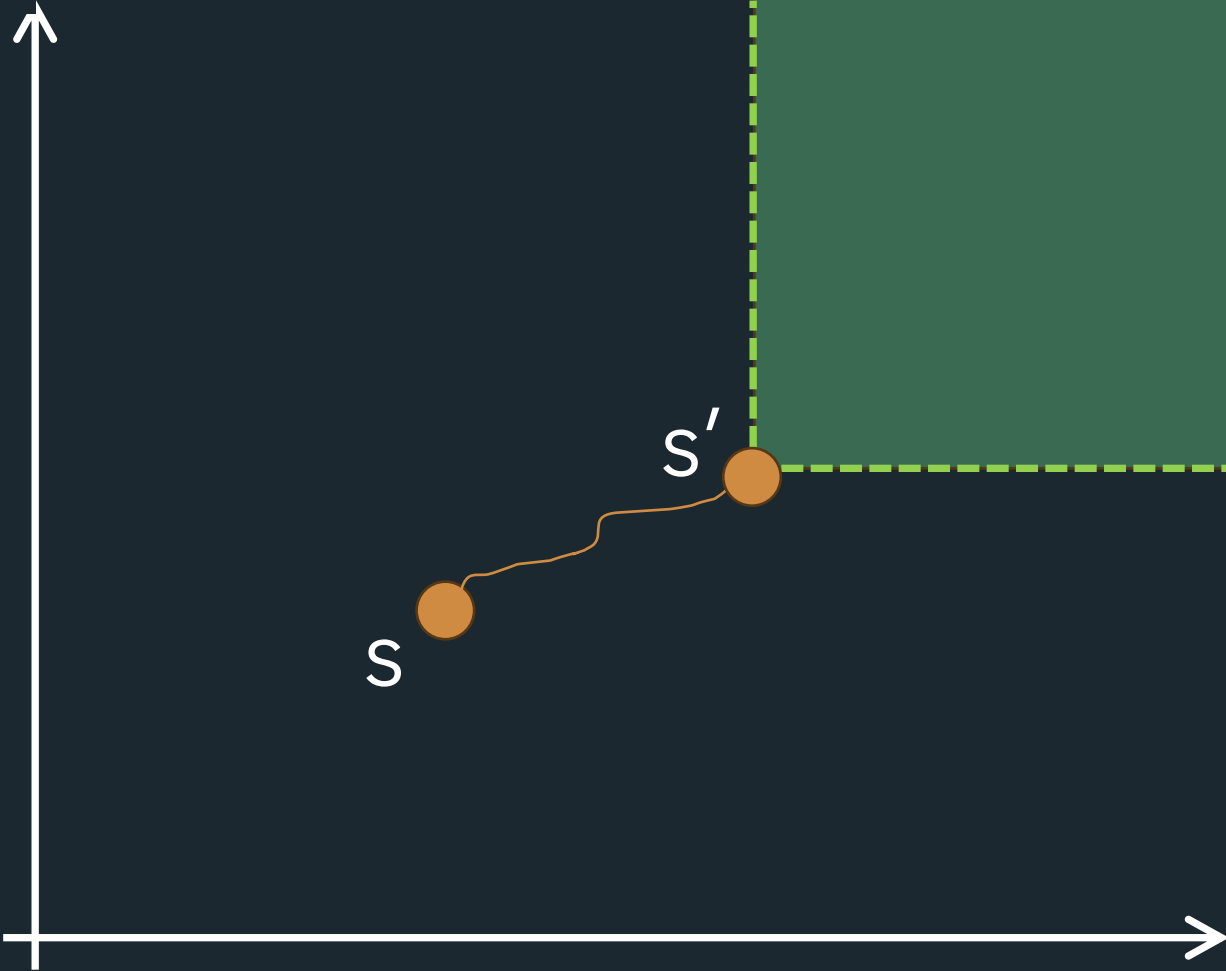
**Success!**

5 GENDER EQUALITY





ROI

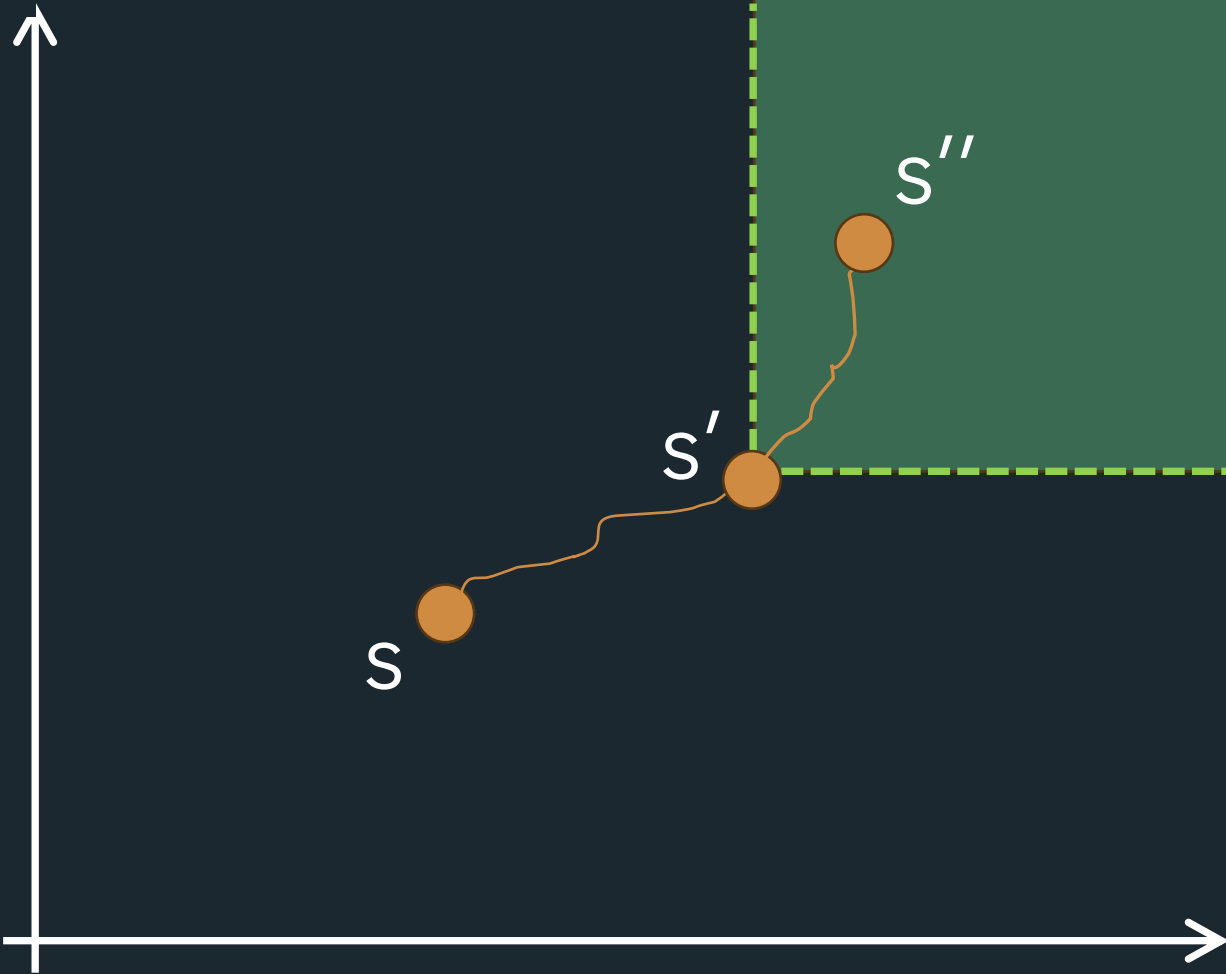


5 GENDER EQUALITY





ROI

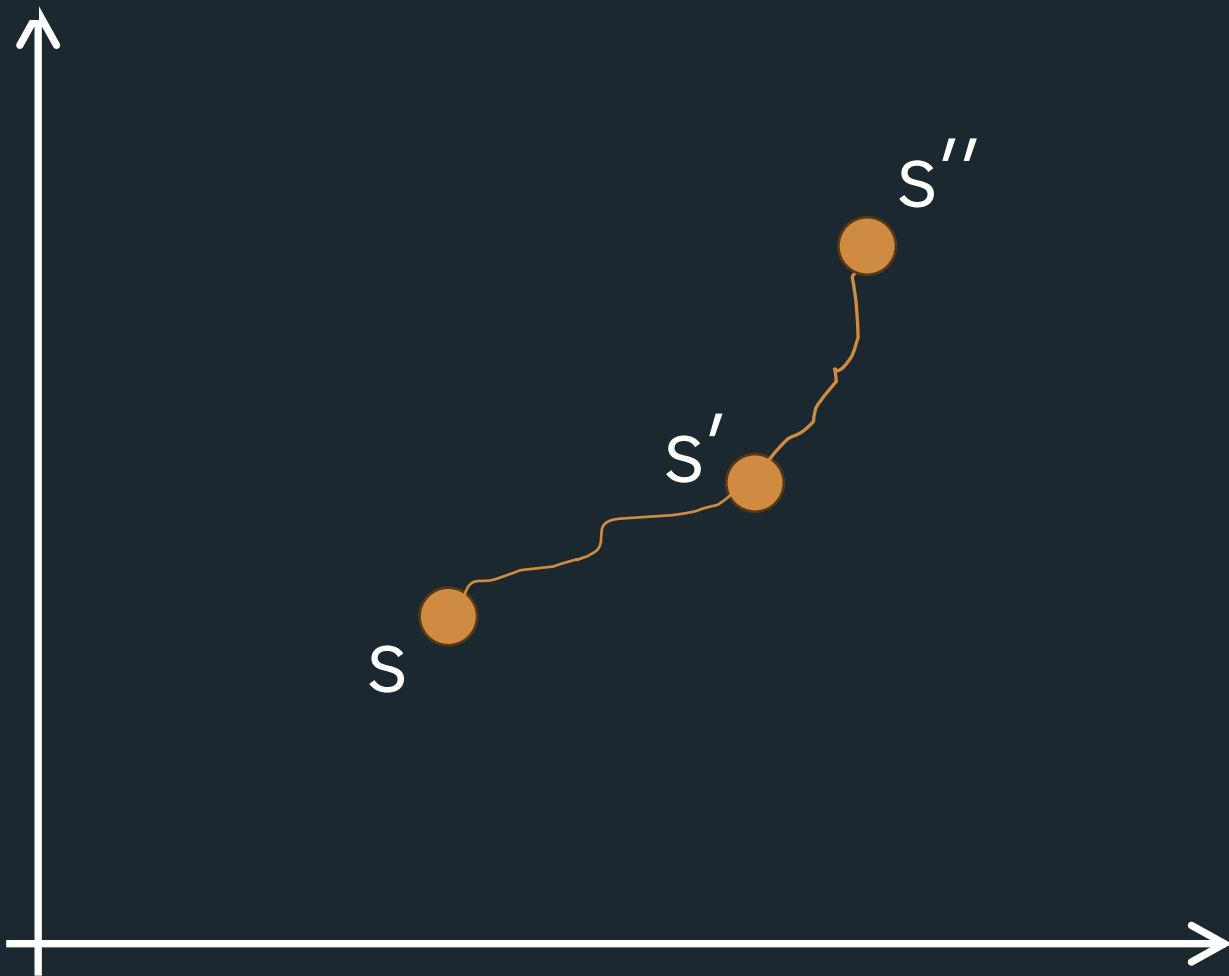


5 GENDER EQUALITY





ROI



Let's keep exploring?

Expand GAPs?



5 GENDER EQUALITY





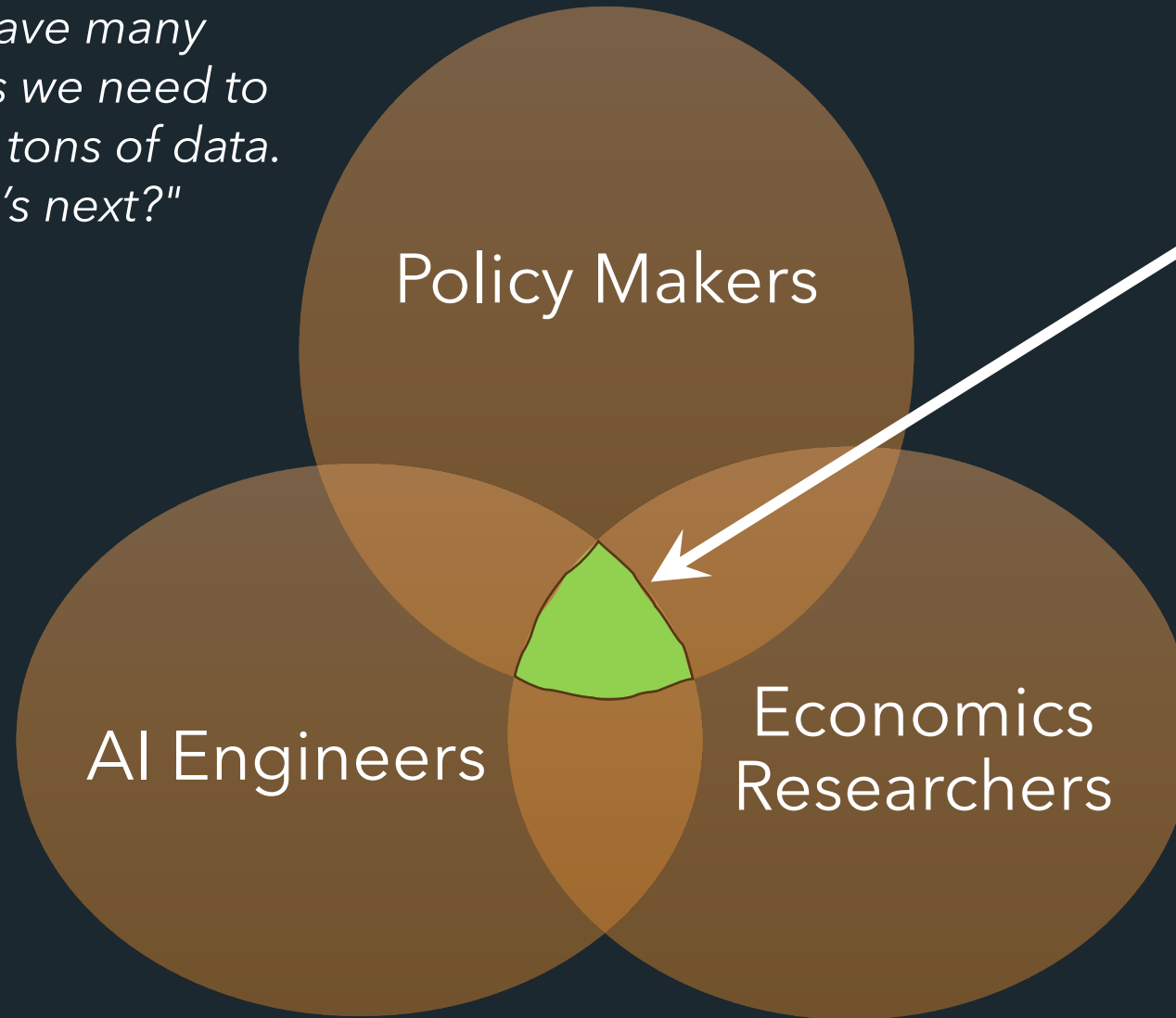
We should explore what's possible.

OK, but who are "we"?



Partnerships are needed.

*"We have many problems we need to solve and tons of data. What's next?"*



**Main Thesis**  
Sweet spot.

*"Data and algorithms are amazing, but there is no Free Lunch"*

*"Data and algorithms are fine, but finding causal effects is key. And free lunches are possible."*

# AI Engineering

## Toolbox: Algorithms



*There is no single best algorithm for all problems...*

*...what is the environment and what kind of problem are you trying to solve?*

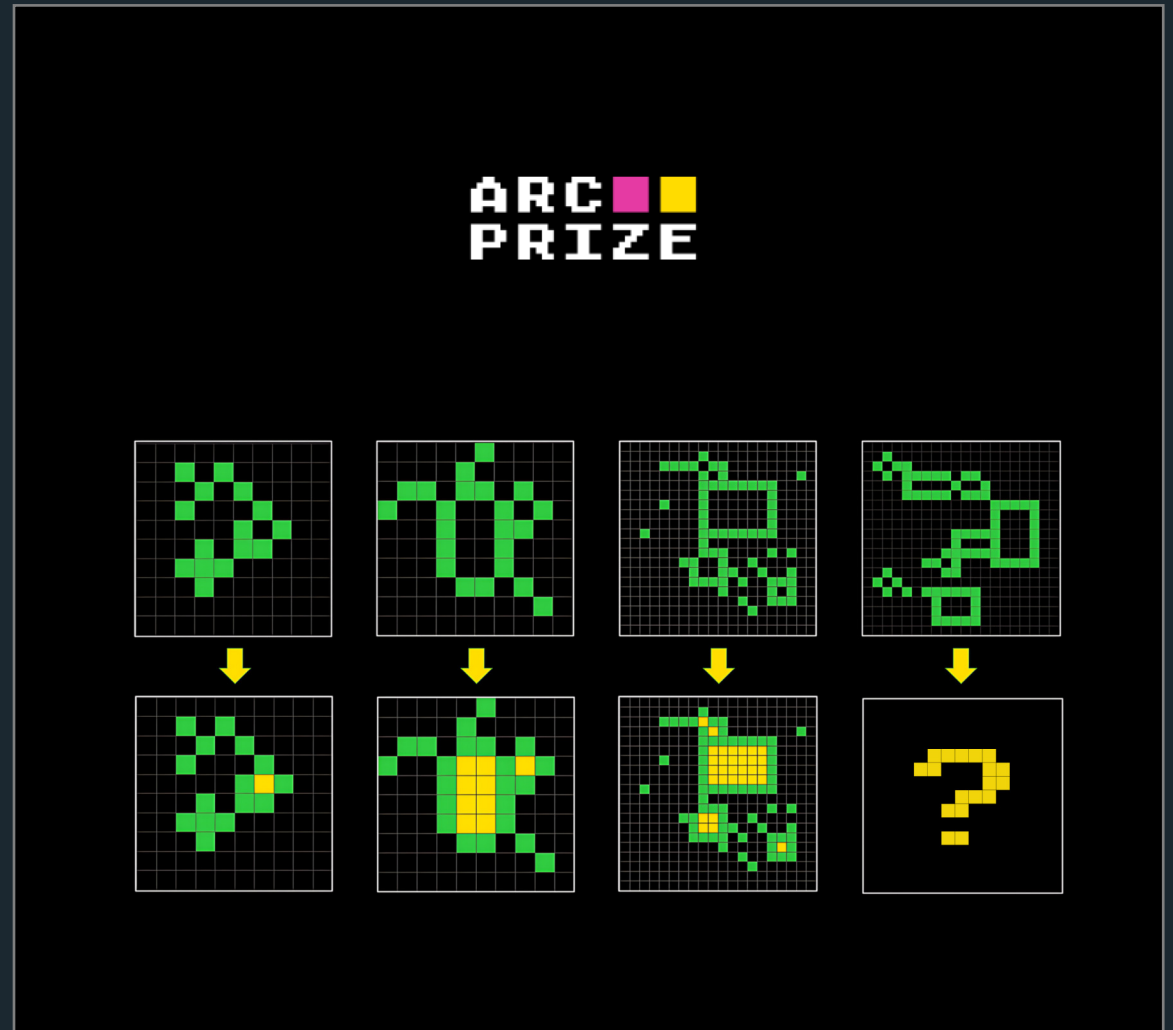
# AI Engineering

Is it like this?



# AI Engineering

...or maybe like this?



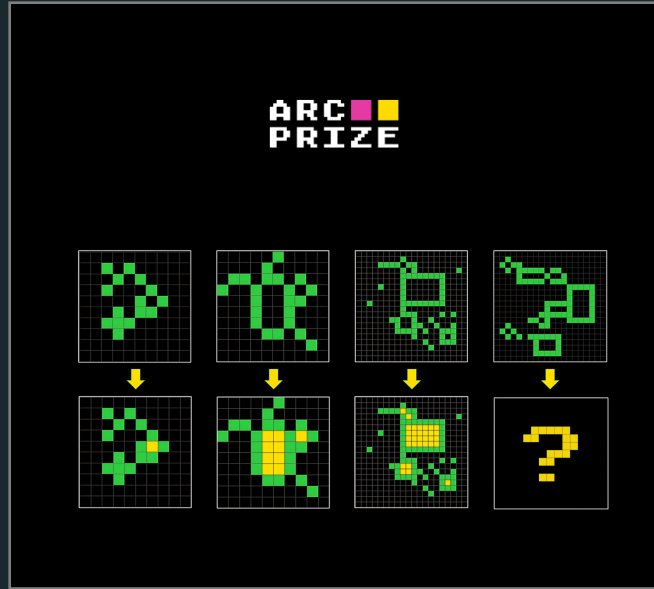
No, it's like this.





Best Algorithm

A3C



Best Algorithm

Ryan Greenblatt's



Best Algorithm

?

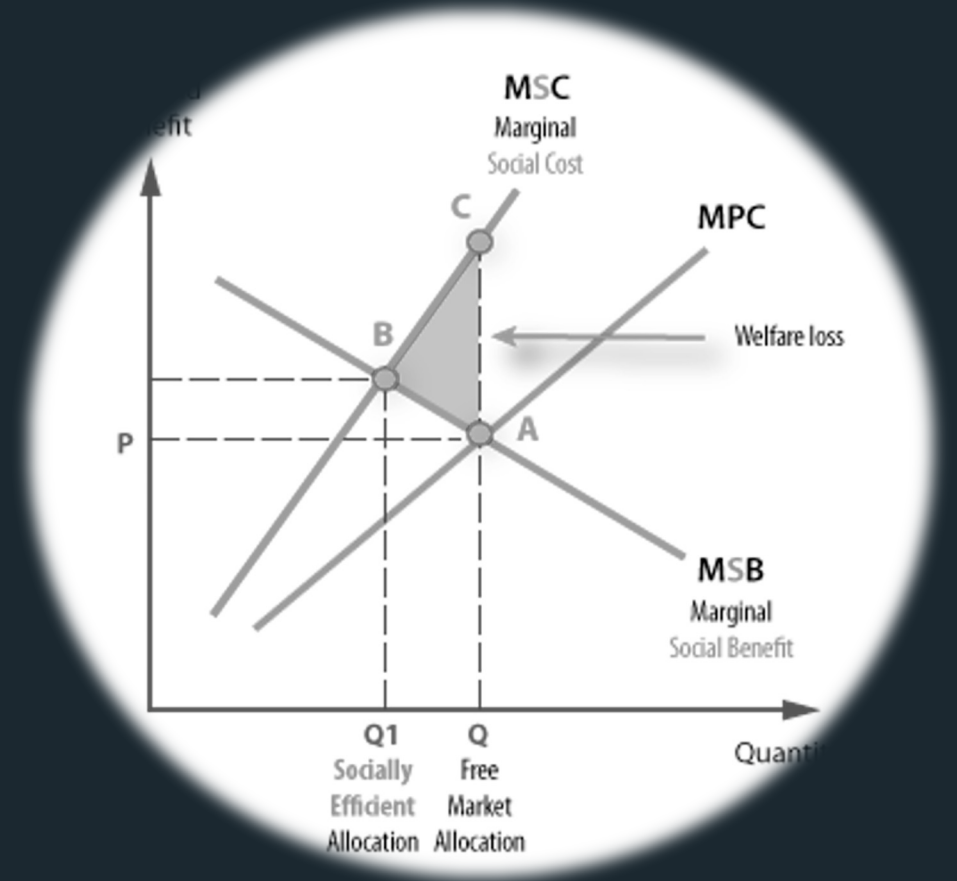
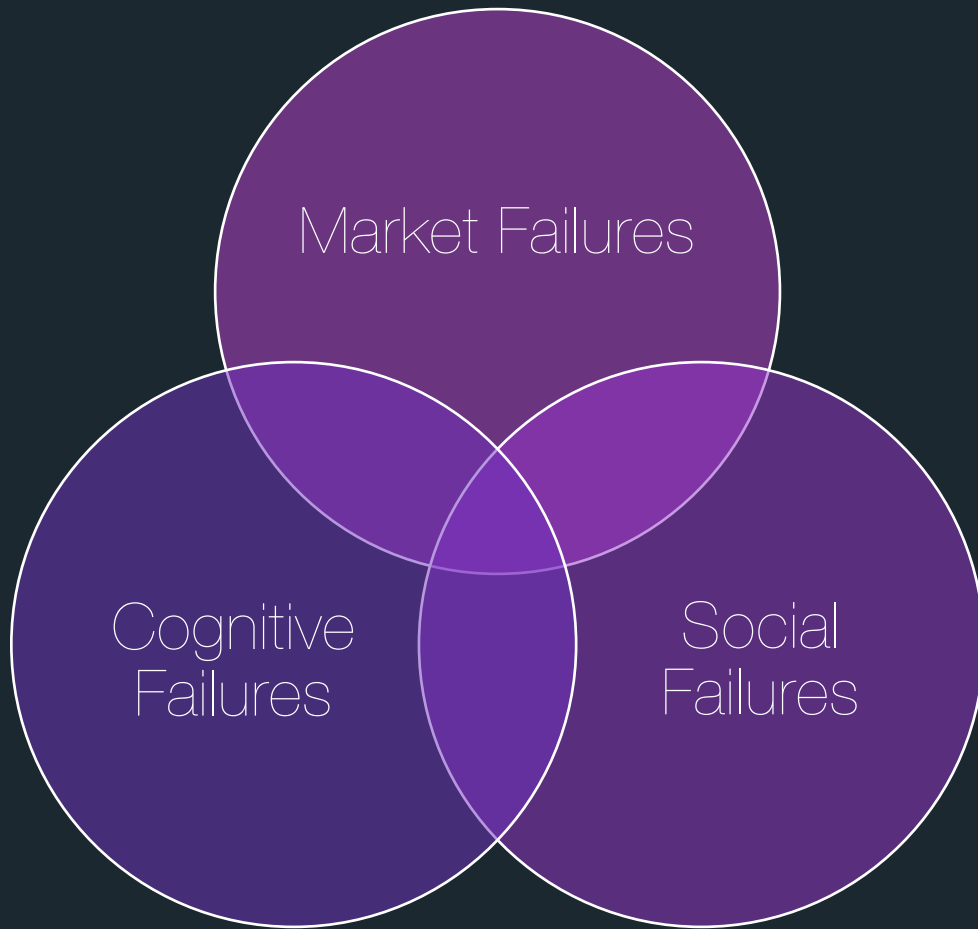


The Economics toolbox is big too.

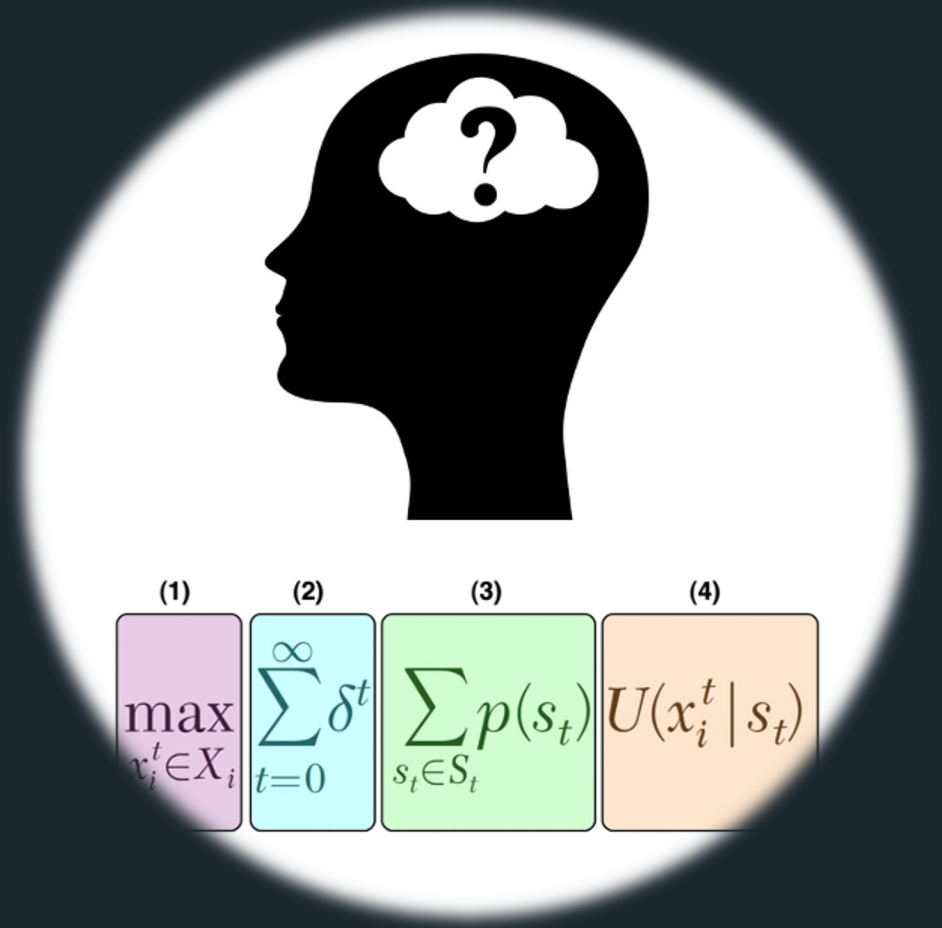
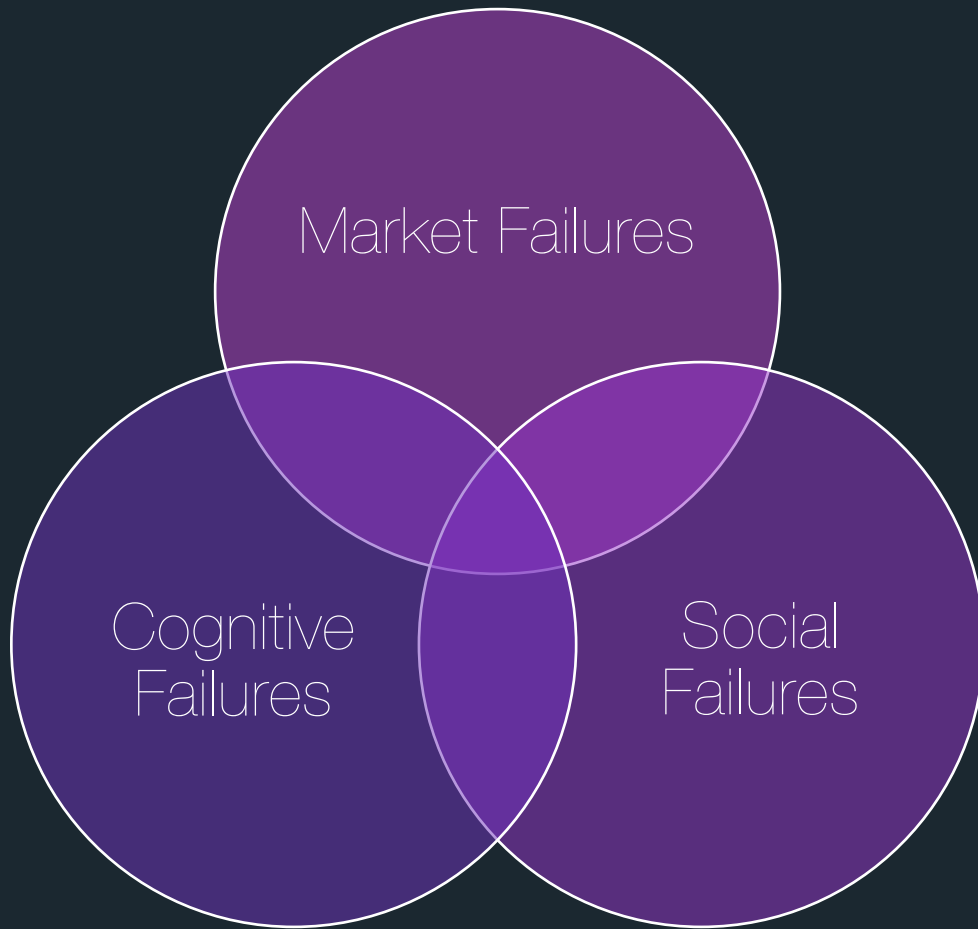
And it tries to solve real-world problems.

Causality of actions is key.

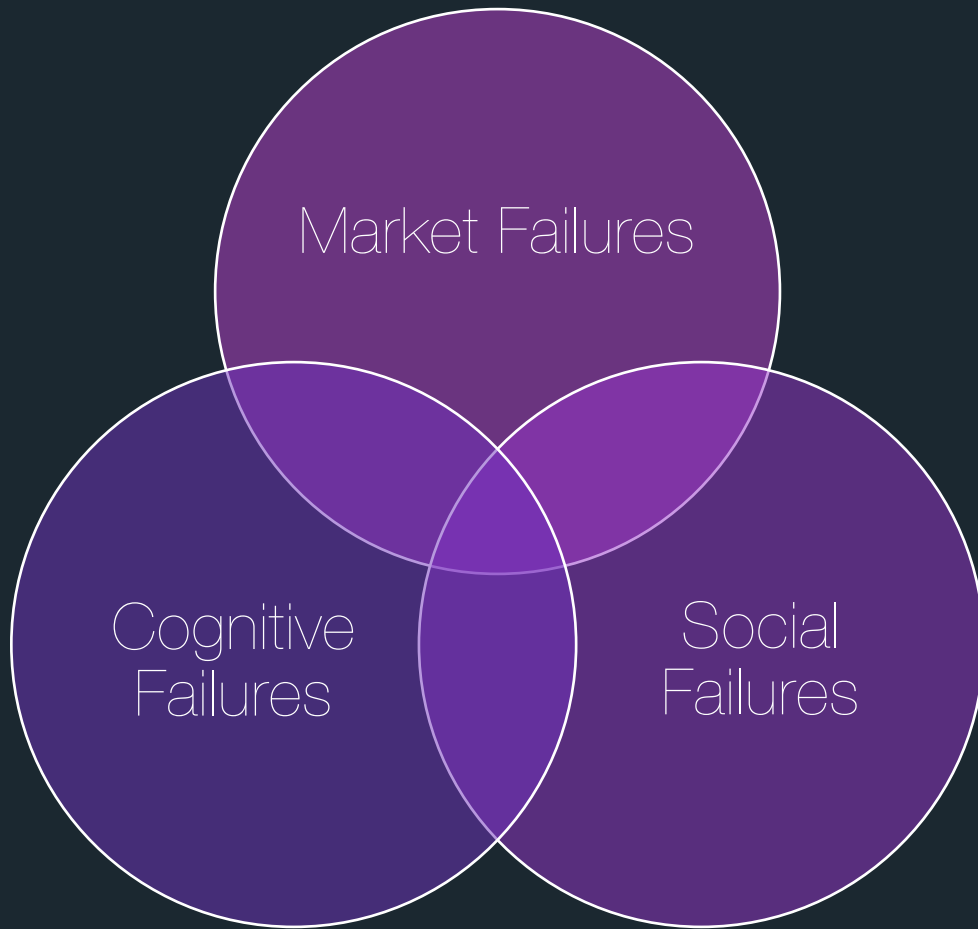
# Economics



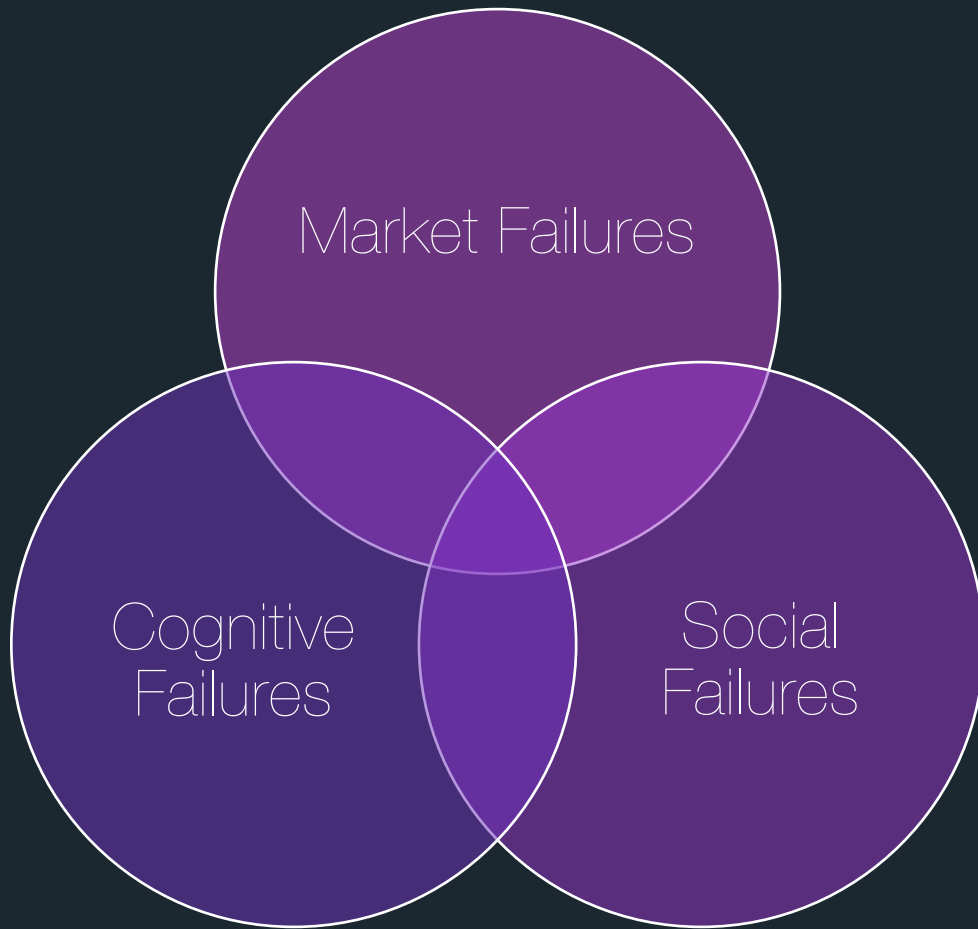
# Economics



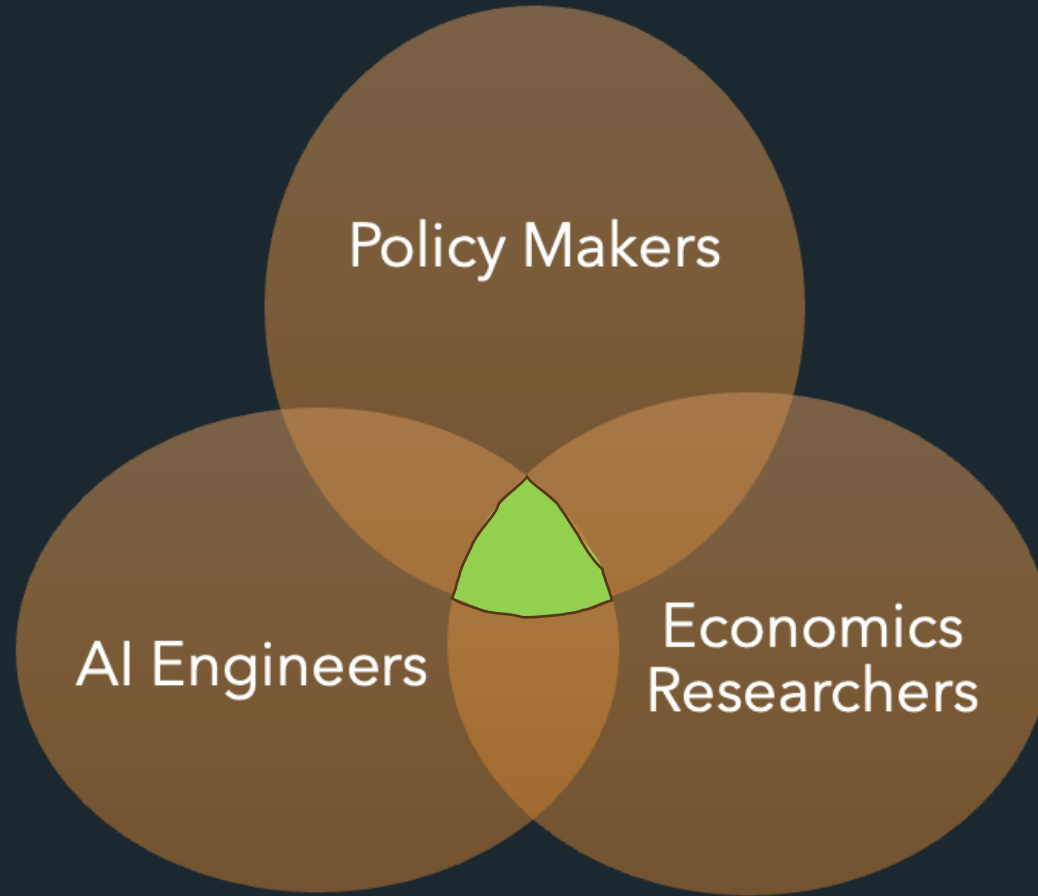
# Economics



# Economics



*At a minimum,  
algorithms in the  
public interest  
should try to solve  
these problems...*



We need partnerships to explore solutions.

Take Away Points

*No, it will  
take at least  
10 years!*

*No, it's  
already here!  
It arrived in  
2022.*

*No, we've  
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AI is coming.



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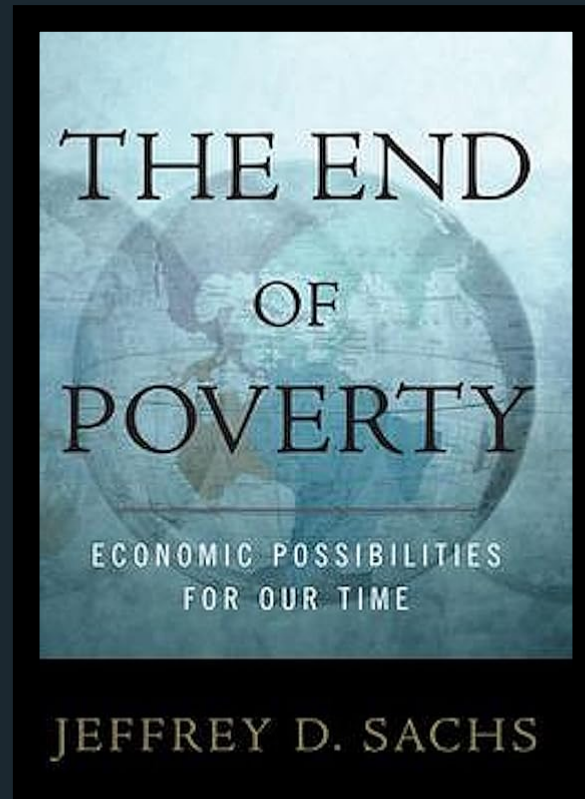
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~~AI is coming.~~

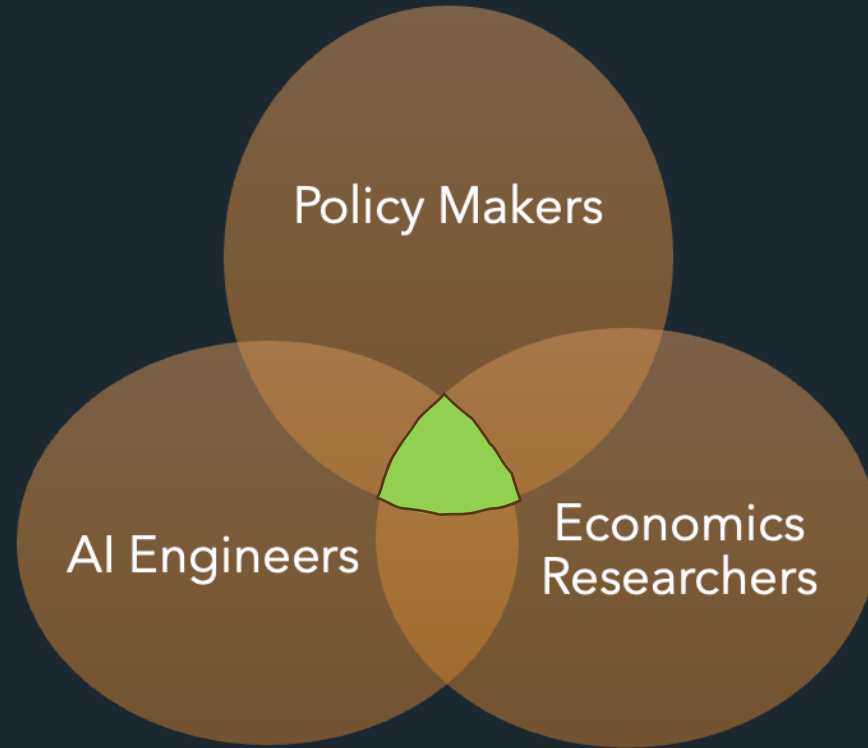
GAP-learning systems are already here.

1. “Effective compute cost” will continue to plummet, with greater ease of access
2. A forward-looking strategy should complement the expected advancements
3. We should build, test and explore tailored solutions to local problems



Does AI provide new economic possibilities for our time?

Very likely. But we need to explore what they may be...




Can we explore together?

Thanks!

[david.yanagizawa-drott@uzh.ch](mailto:david.yanagizawa-drott@uzh.ch)

Economics.  
*For Society.*

Watch **replay** on  **YouTube**