People-first process

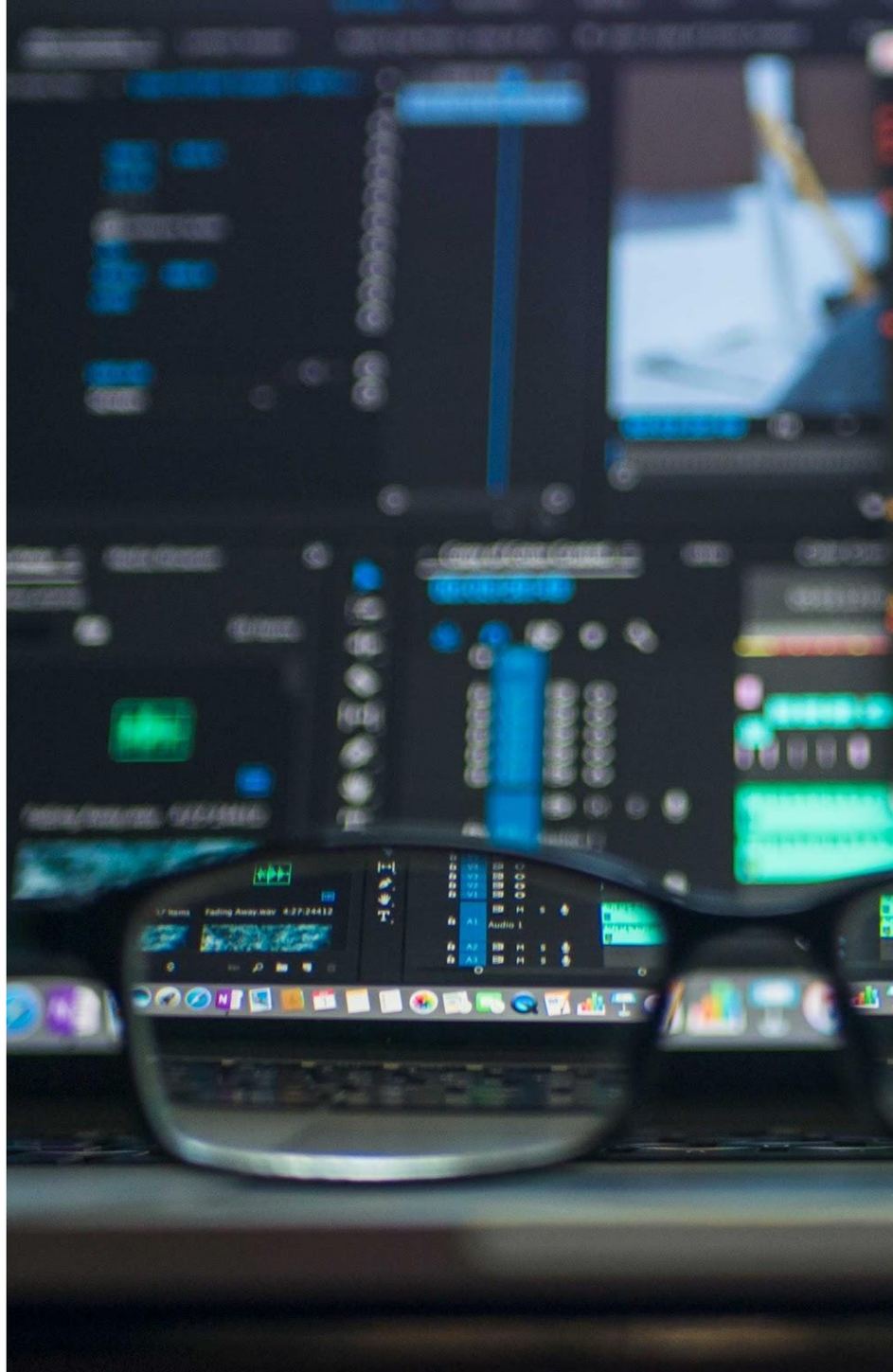
for applied AI, *within an ethical framework*

Catalina Butnaru, City AI London

How to build an augmented business

TECHNOLOGY

AI = TD+ML+HITL



How to build an augmented business

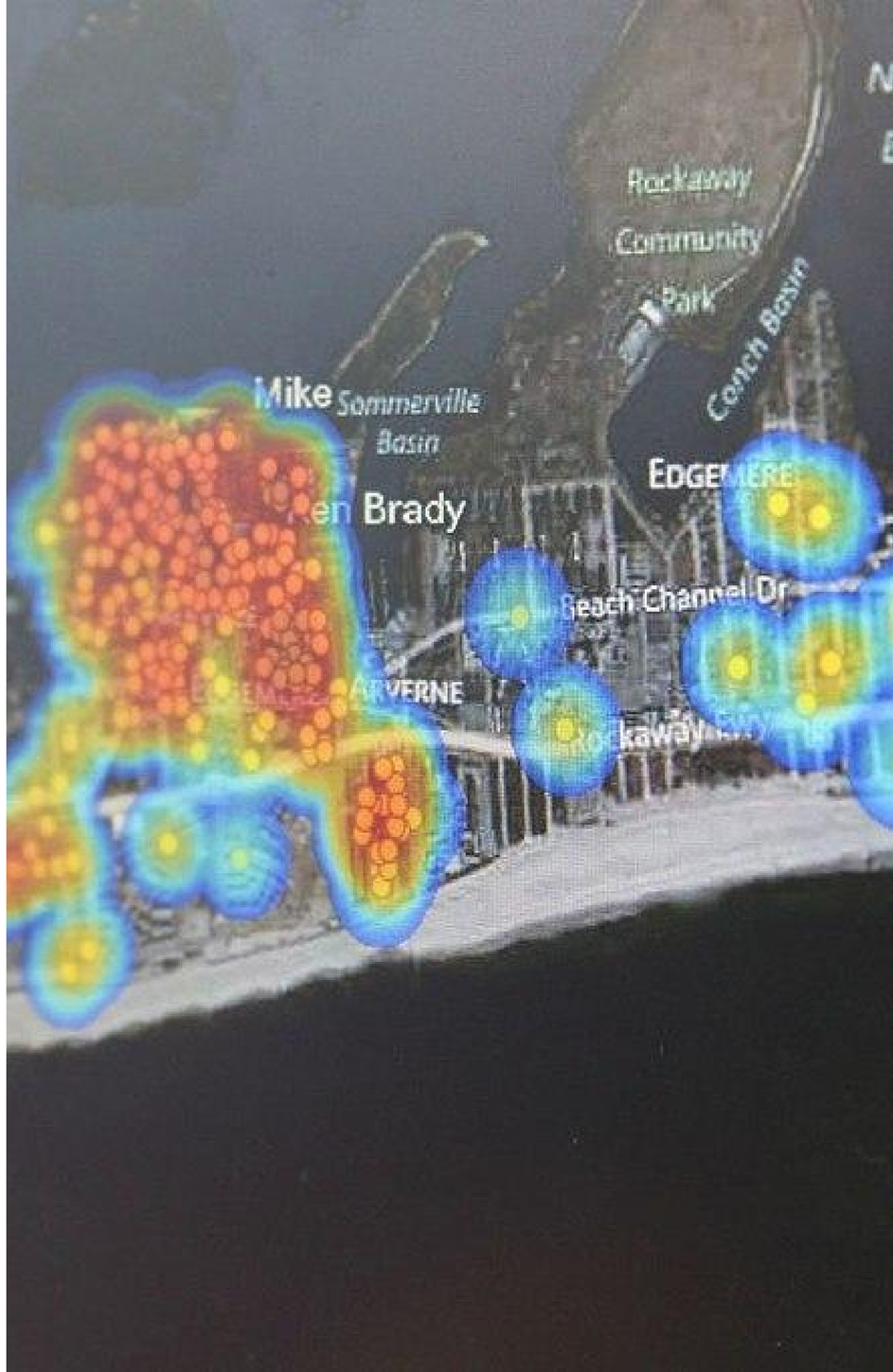
TECHNOLOGY

$$AI = TD+ML+HITL$$

GOAL

$$\mathbf{F} = T \nabla S\tau^{1}$$

1 Dr. Alexander Wissner Gross: **A New Equation for Intelligence**



How to build an augmented business

TECHNOLOGY

$$AI = TD+ML+HITL$$

PROCESS

Agile, TDD, Waterfall, DevOps

GOAL

$$\mathbf{F} = T \nabla S\tau^{1}$$

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How to build an augmented business

TECHNOLOGY

AI = TD+ML+HITL

PROCESS

*that augments people

GOAL

$\mathbf{F} = T \nabla S\tau^1$

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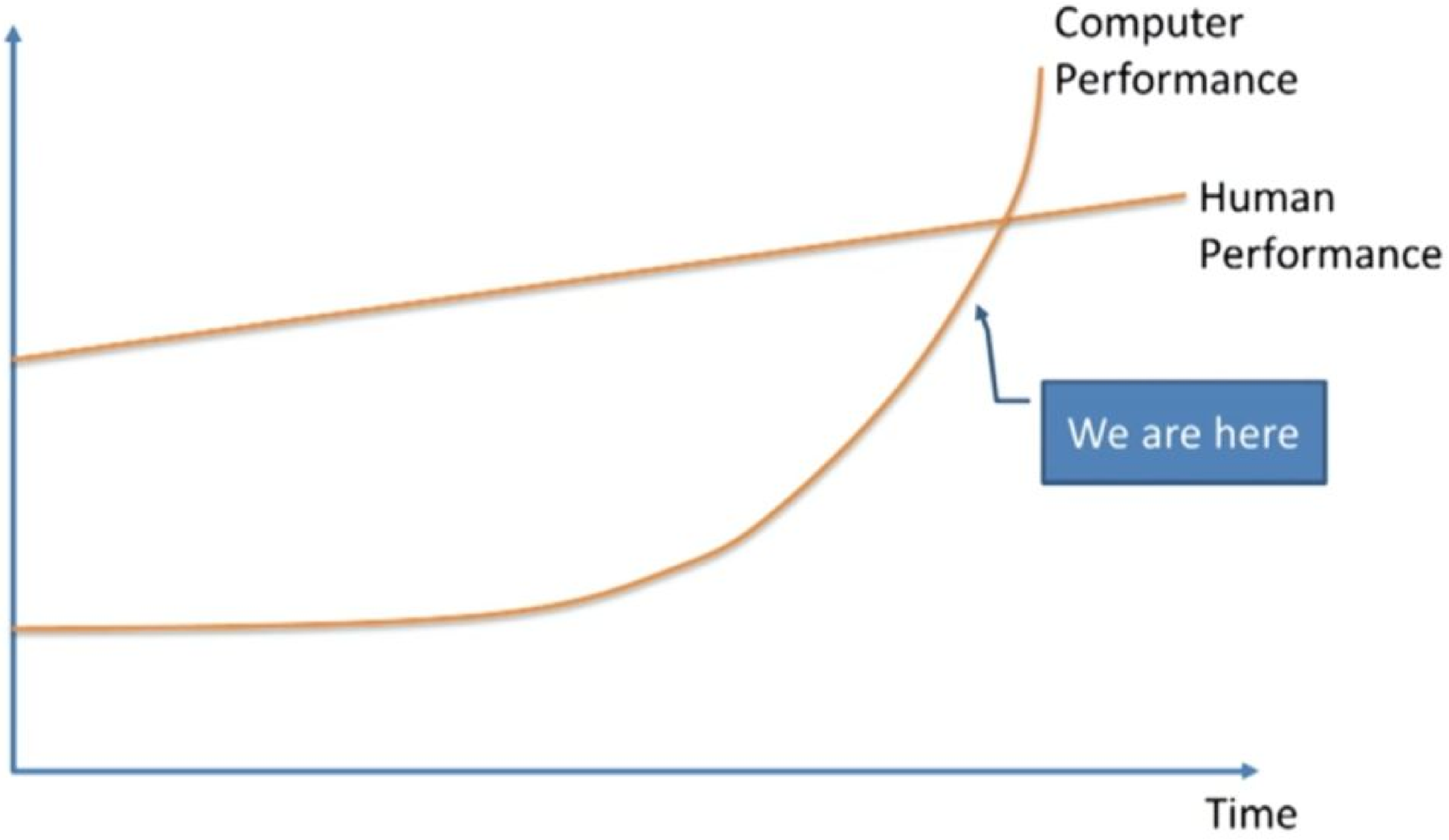

How agile technology companies see AI

Tim Urban, Andrew Finn: **WaitButWhy.com**

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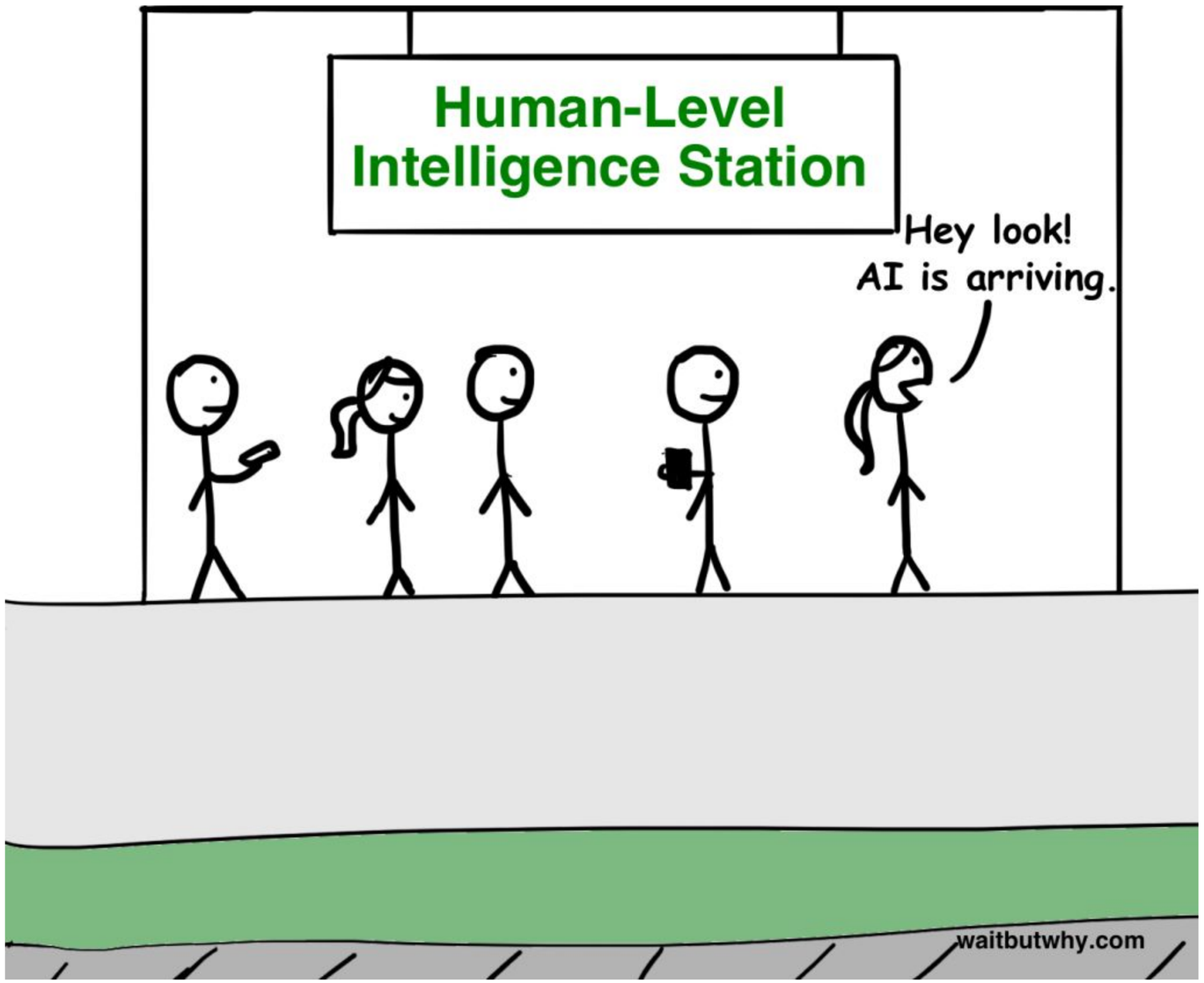

How soon-to-be cognitive companies see AI

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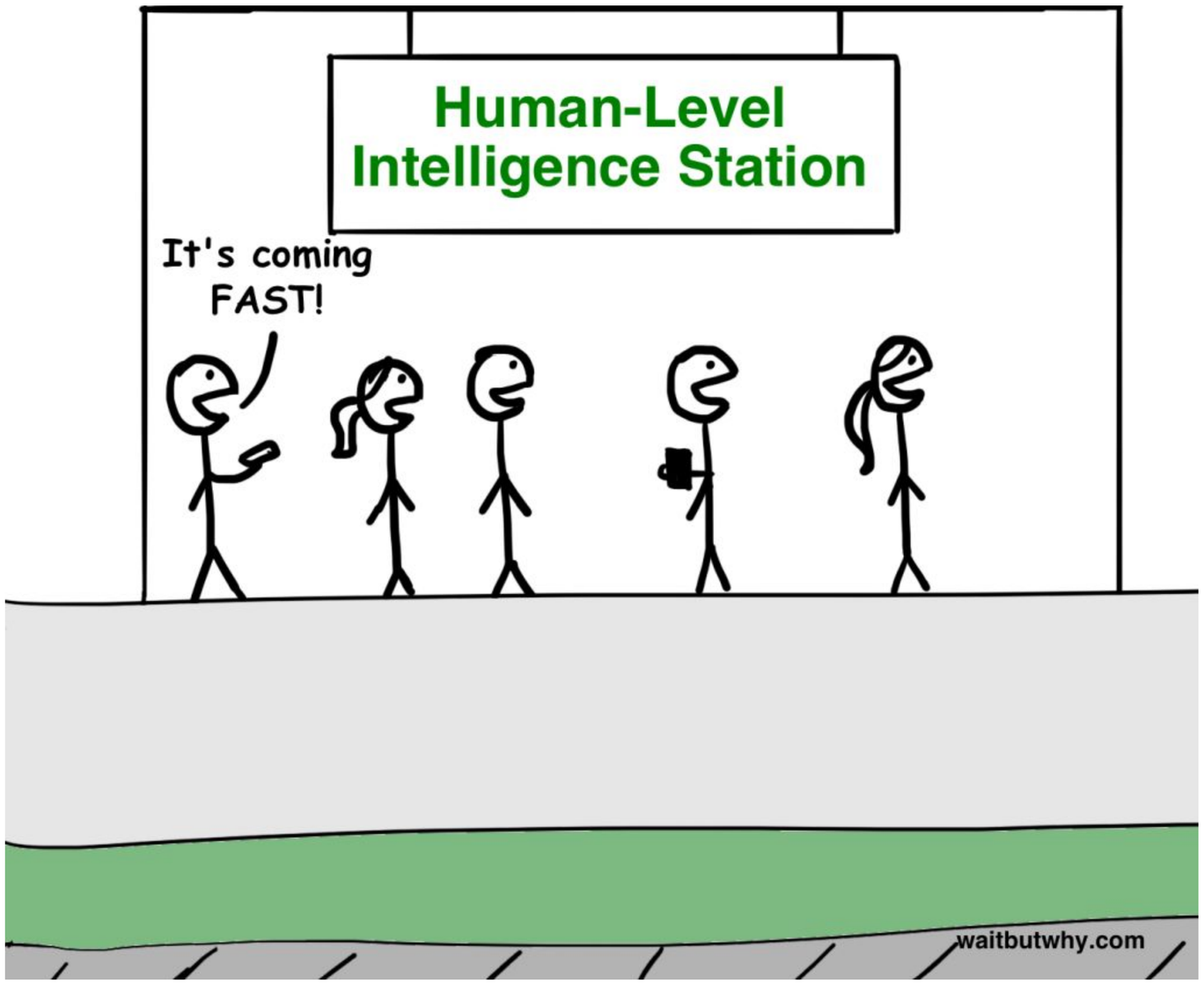

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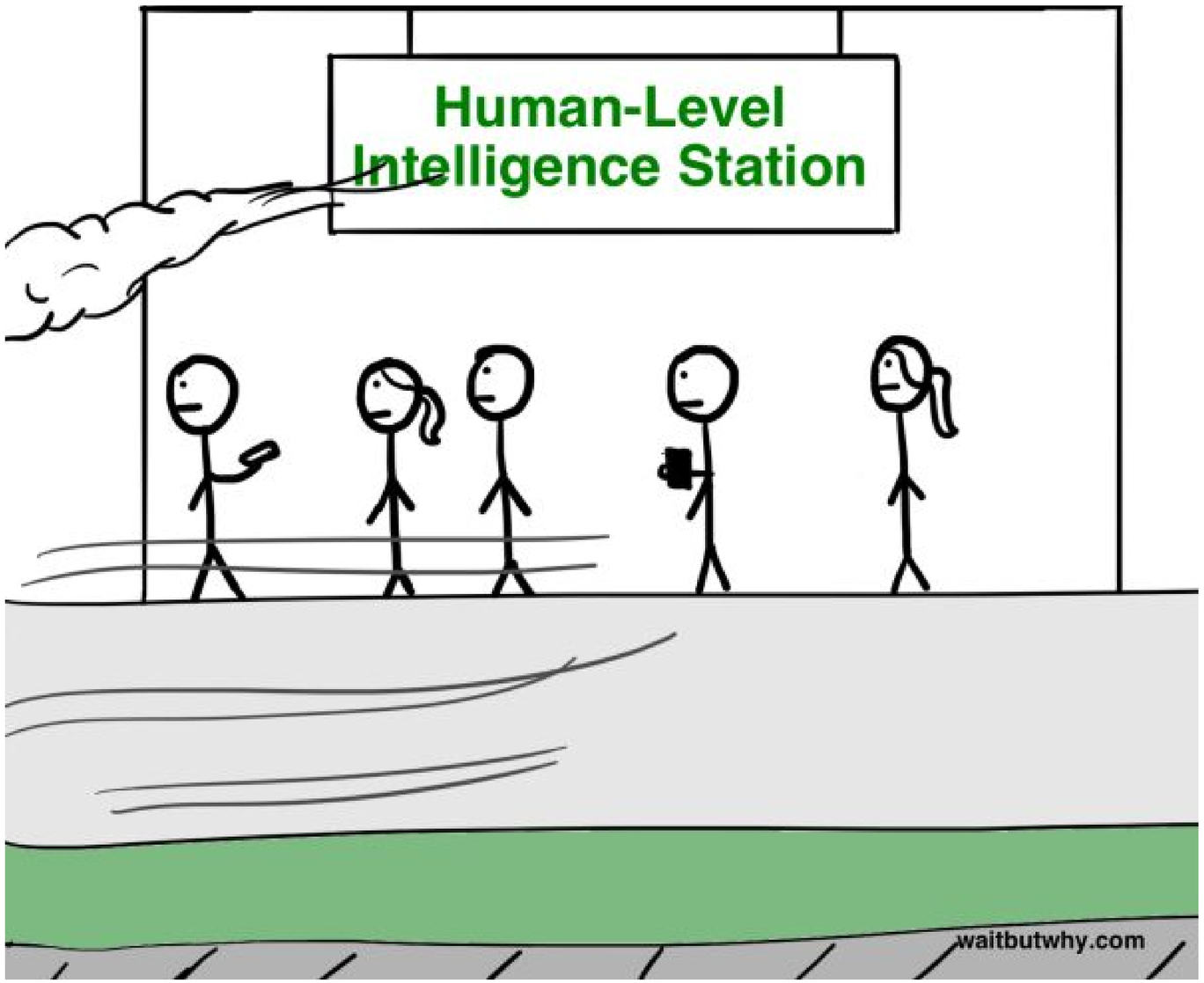

How soon-to-be cognitive companies see AI

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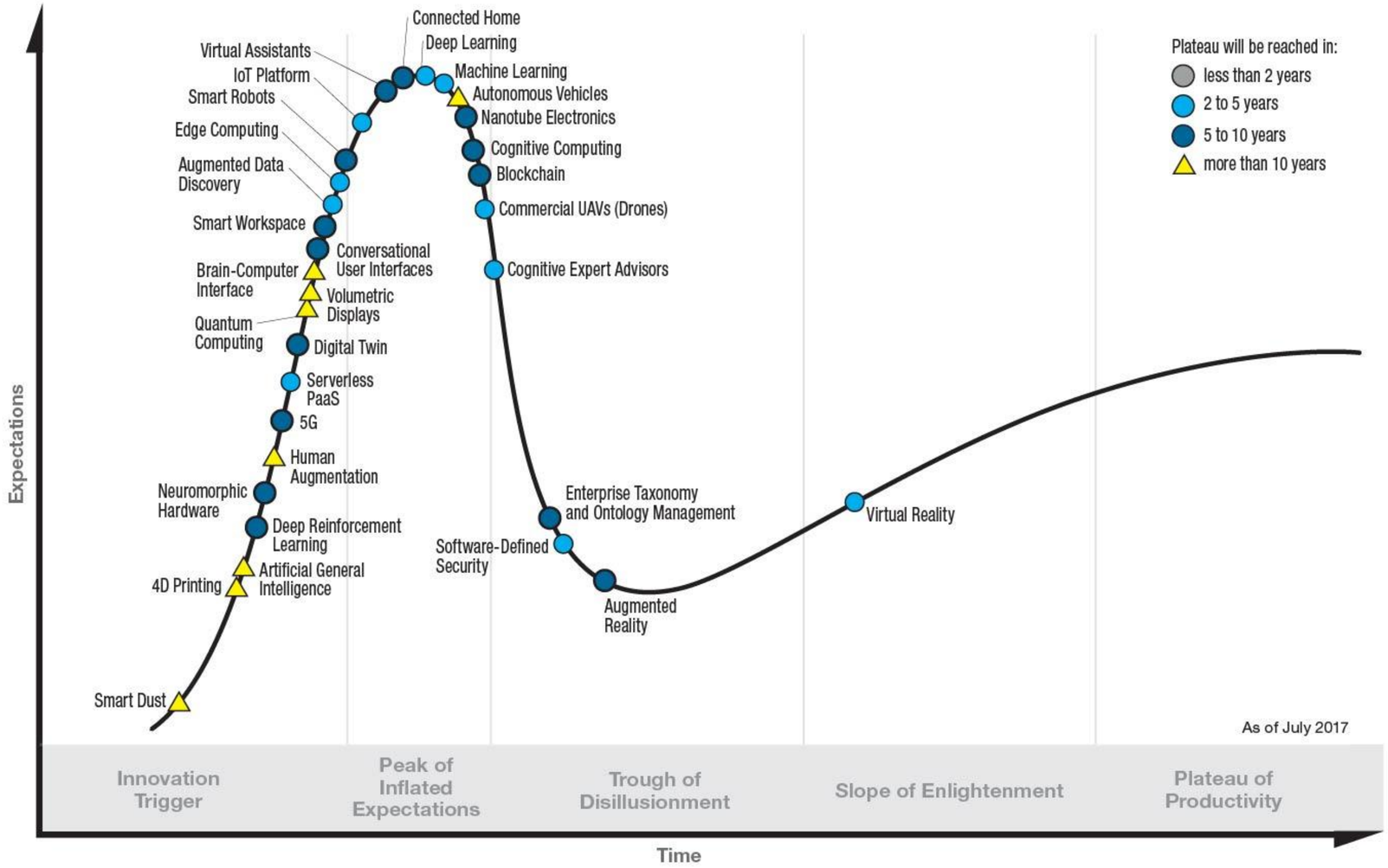
Looking ahead

We love the hype.
But do people love AI?



gartner.com/SmarterWithGartner

Source: Gartner (July 2017)

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Gartner

Why a Process

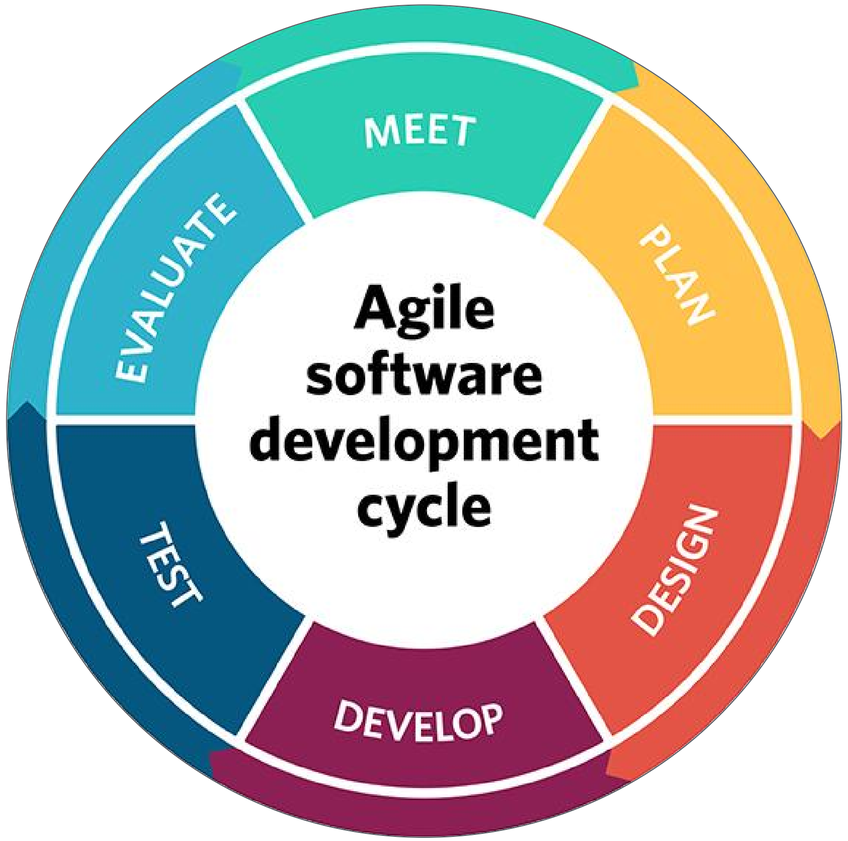
Is Agile **compatible** with AI?

What’s missing in existing **processes**?

New roles and responsibilities

Ethical by design.

Agile works



PLAN For evergreen projects

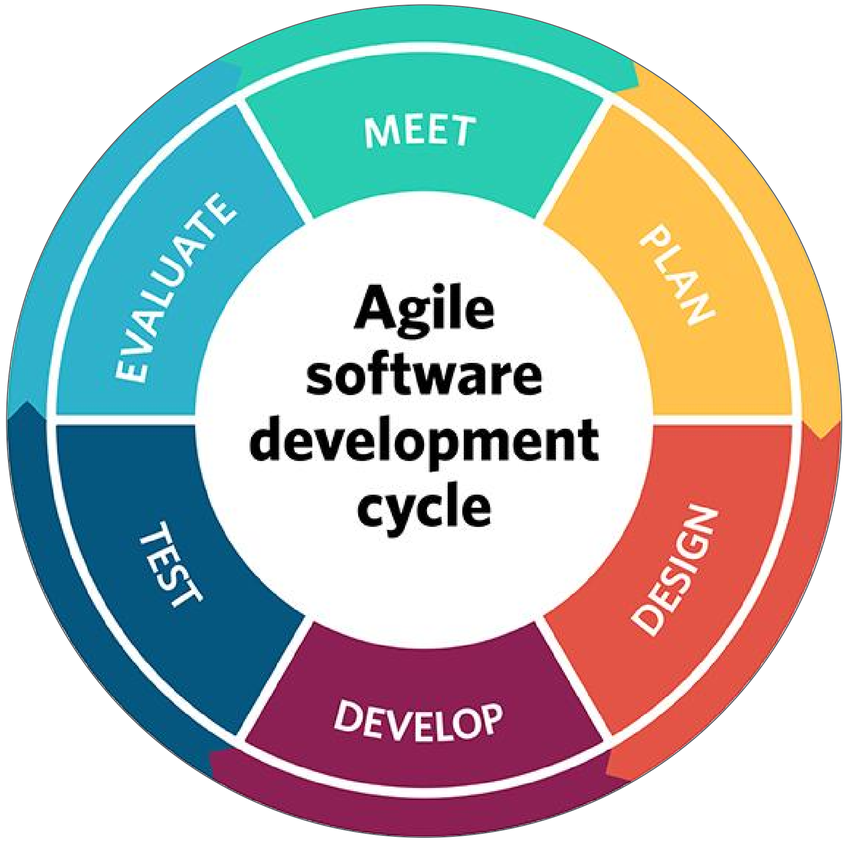
DESIGN Where fast prototyping is possible

DEVELOP Where tasks, backlog and outputs are clear

TEST That can be tested on the go

FEEDBACK And end-user / stakeholder feedback is key

But not with AI



PLAN Hard to plan training time

DESIGN Design for stakeholders oversees impact on jobs

DEVELOP Ml training is done *in-situ* (black box)

TEST Sandbox testing vs live testing

FEEDBACK Direct customer feedback may render outcomes unusable (eg. Tay)

What’s missing?

Integration of **ethical standards**

Cognitive augmentation considerations

Technology **adoption by workforce**

Data privacy, quality and management

SCOPE

Define problem, research applied AI use cases;
Define success and metrics;
Skill mapping and ethical standards.

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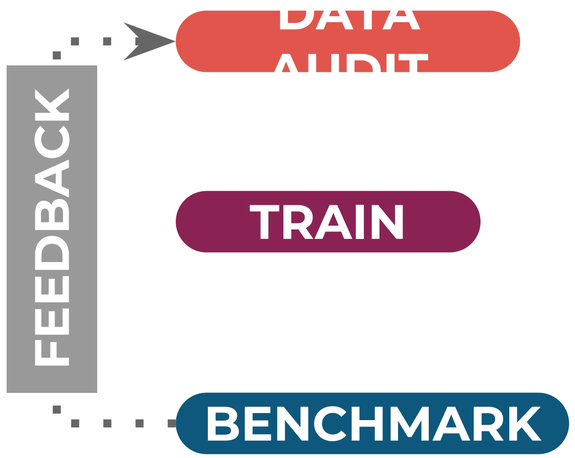
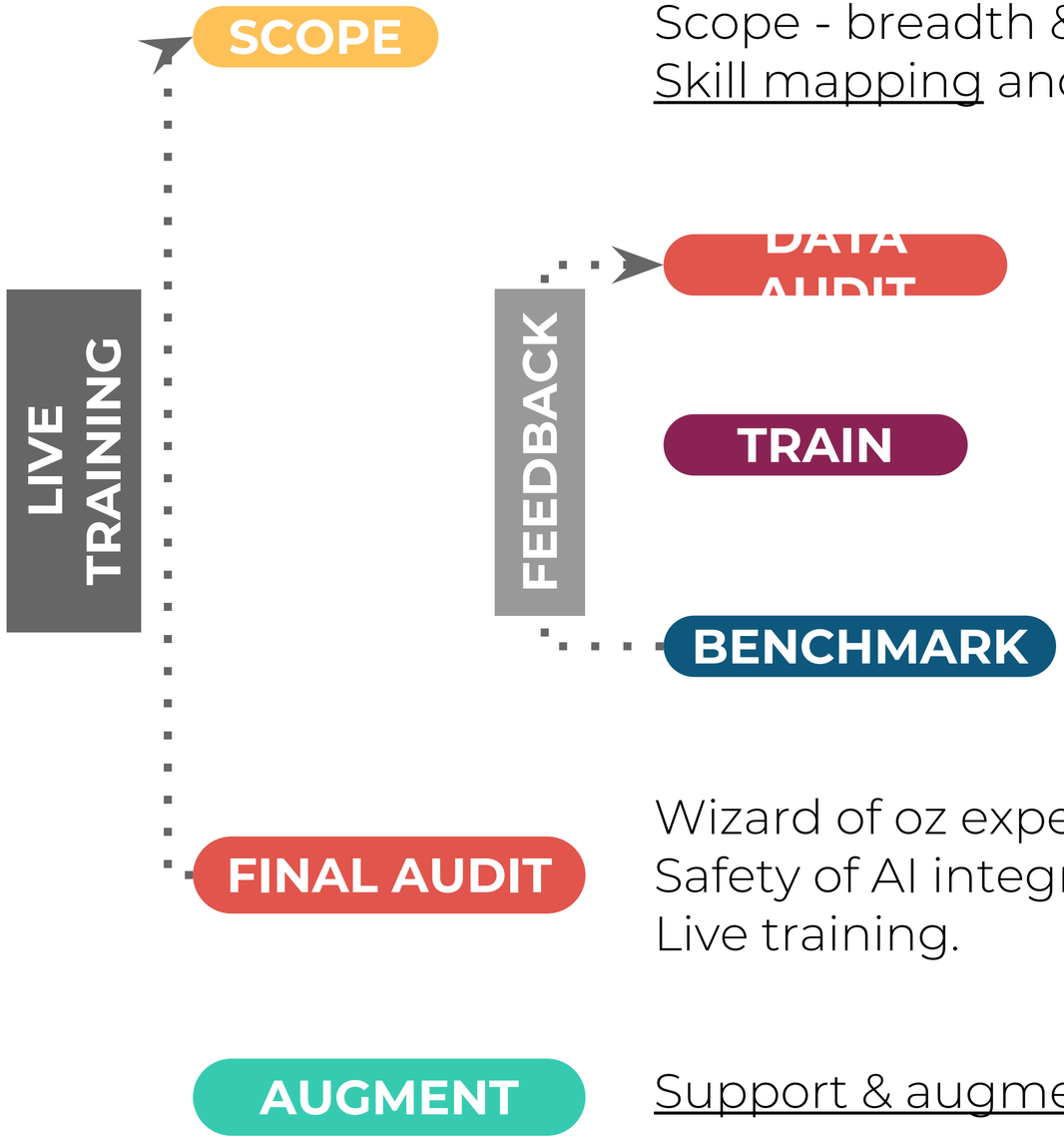


Data sourcing;
Data quality (completeness) and compatibility;
Privacy and ownership

Test the hypothesis;
May require several types of training

Error threshold against similar applications;
Compare against existing system performance;
Human intervention - when and why;



Scope - breadth & impact
Skill mapping and ethical standards

Data management, quality and compatibility;
Privacy and ownership.

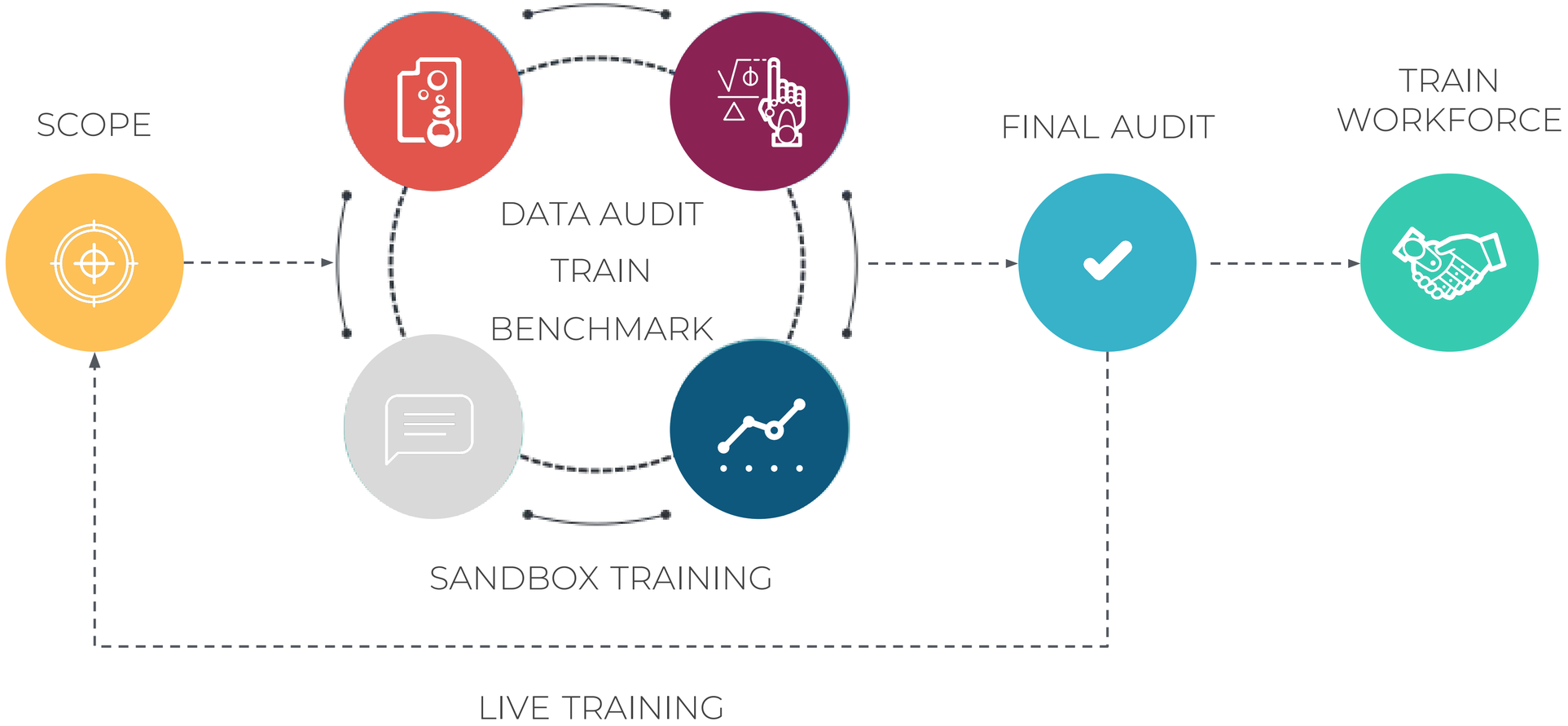
Test a hypothesis;
Several types of technologies

Performance against similar applications
Human intervention - when and why.

Wizard of oz experiments;
Safety of AI integration;
Live training.

Support & augment workforce

HAI - a new process?



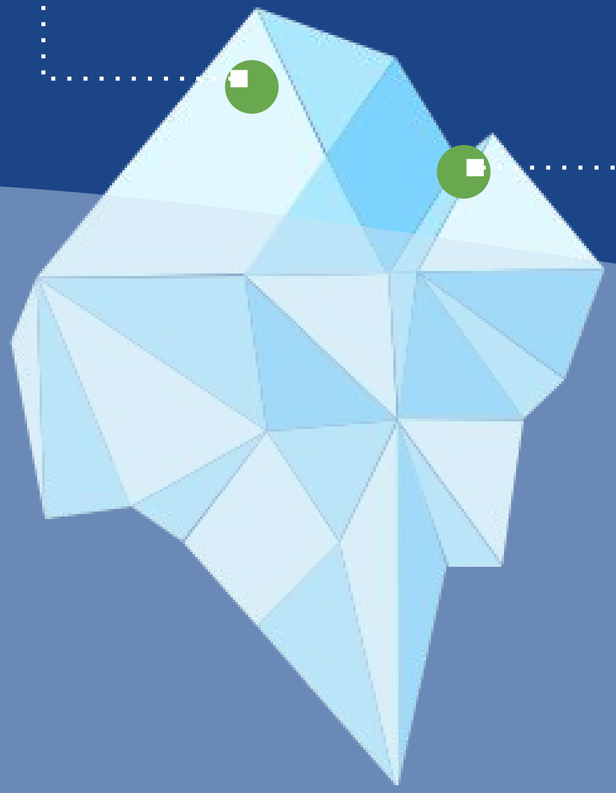
Team roles

Product owner,
Scrum Master,
Development team.

What’s missing?

Data management
internal and external

Hypothesis
Based on data volume



Data management
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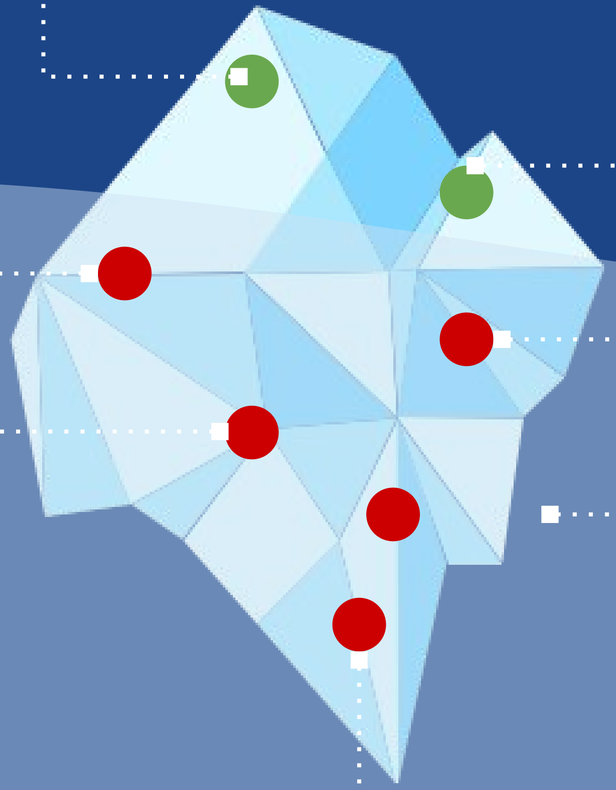


Commissions data
*cold-start problem

Quality
*is data relevant?

Ensures Database completeness
*reduce bias

Legacy systems
*compatibility or migration

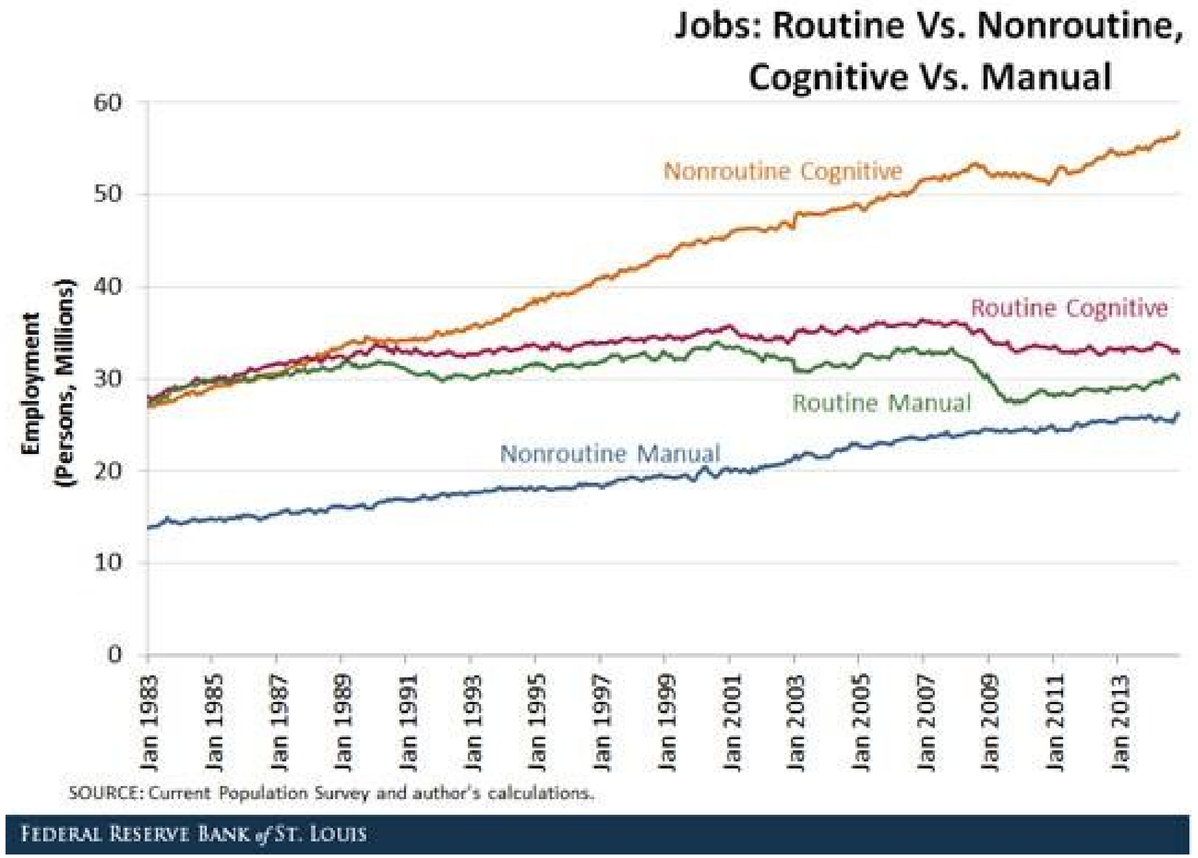
Privacy & Ethics
*Fair, legal use of data for human wellbeing

Data owner

Data Ops + Dev Ops + Data Ethics

- Data ethics: completeness, bias and quality
- Compatibility: transfer from legacy systems or new data collection
- Privacy and ethics
- DevOps, DataOps

Skill mapping



THE FUTURE OF EMPLOYMENT: HOW SUSCEPTIBLE ARE JOBS TO COMPUTERISATION?∗ Carl Benedikt Frey and Michael A. Osborne, September 17, 2013
Oxford University Engineering Sciences Department and the Oxford Martin Programme on the Impacts of Future Technology

Risk of job displacement

- 22% to over 39% of jobs could be partially displaced in the UK

- South Edinburgh constituency is at lowest risk of automation;

- Hayes and Harlington (Heathrow) - highest

The Impact of AI in UK Constituencies: Where will automation hit hardest? - Future Advocacy, London, 2017

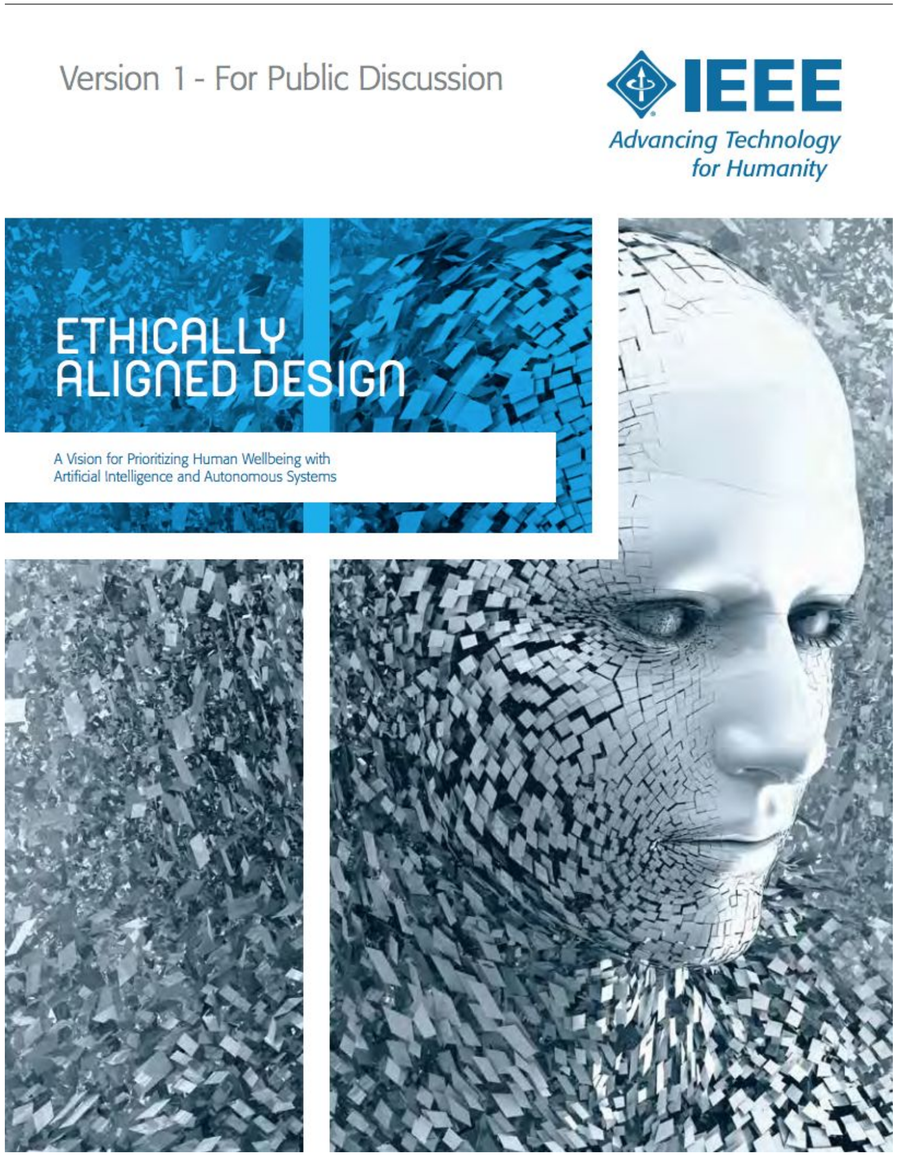
Enabler

Guiding adoption of AI

- scope of automation
- skill mapping vs computerisation vs business impact
- parallel testing against human domain knowledge
- deploy engineers to train employees if needed

Ethical lead

- leading a transparent review of application of AI
- conducting wizard of oz experiments
- applying ethical standards throughout the process
- (transparency, responsibility, human benefit, education)

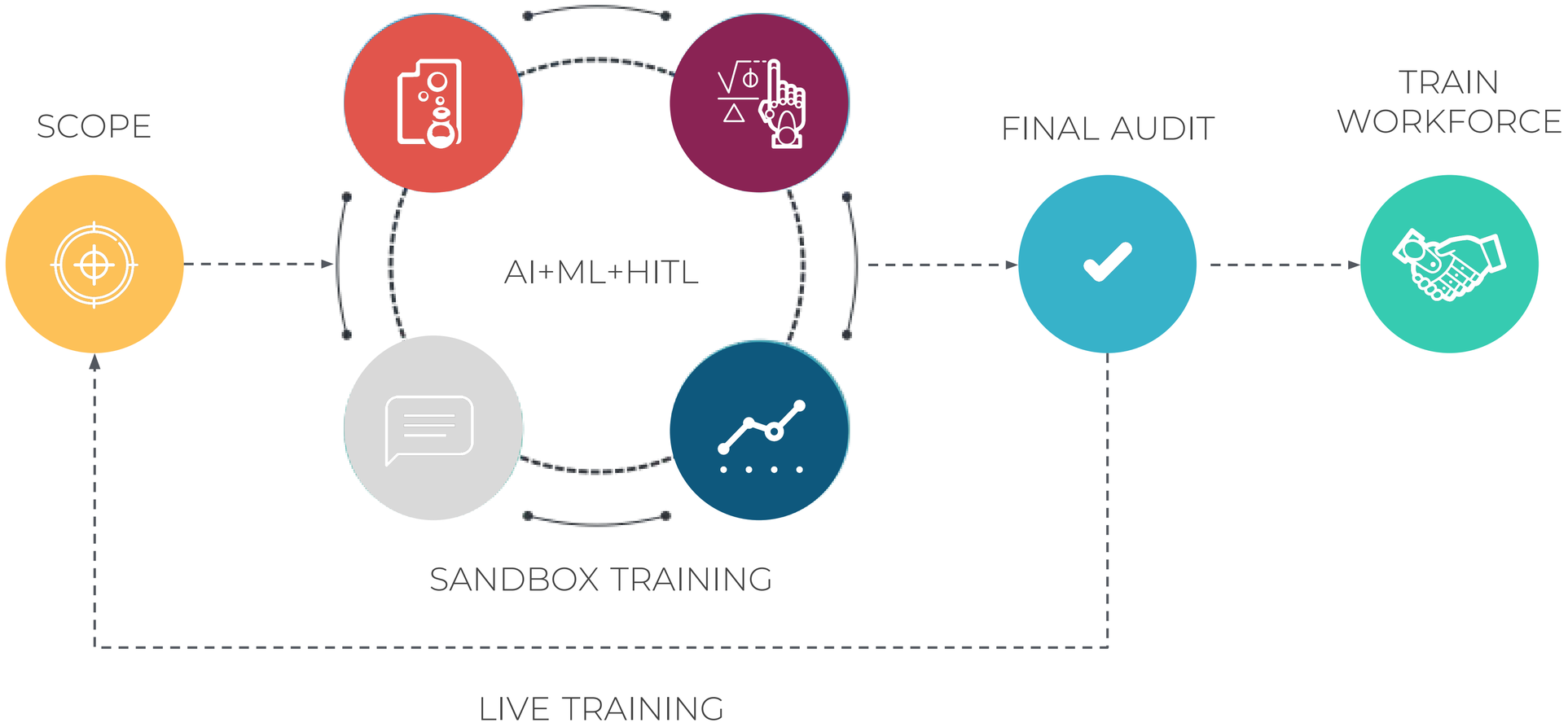


Ethical lead

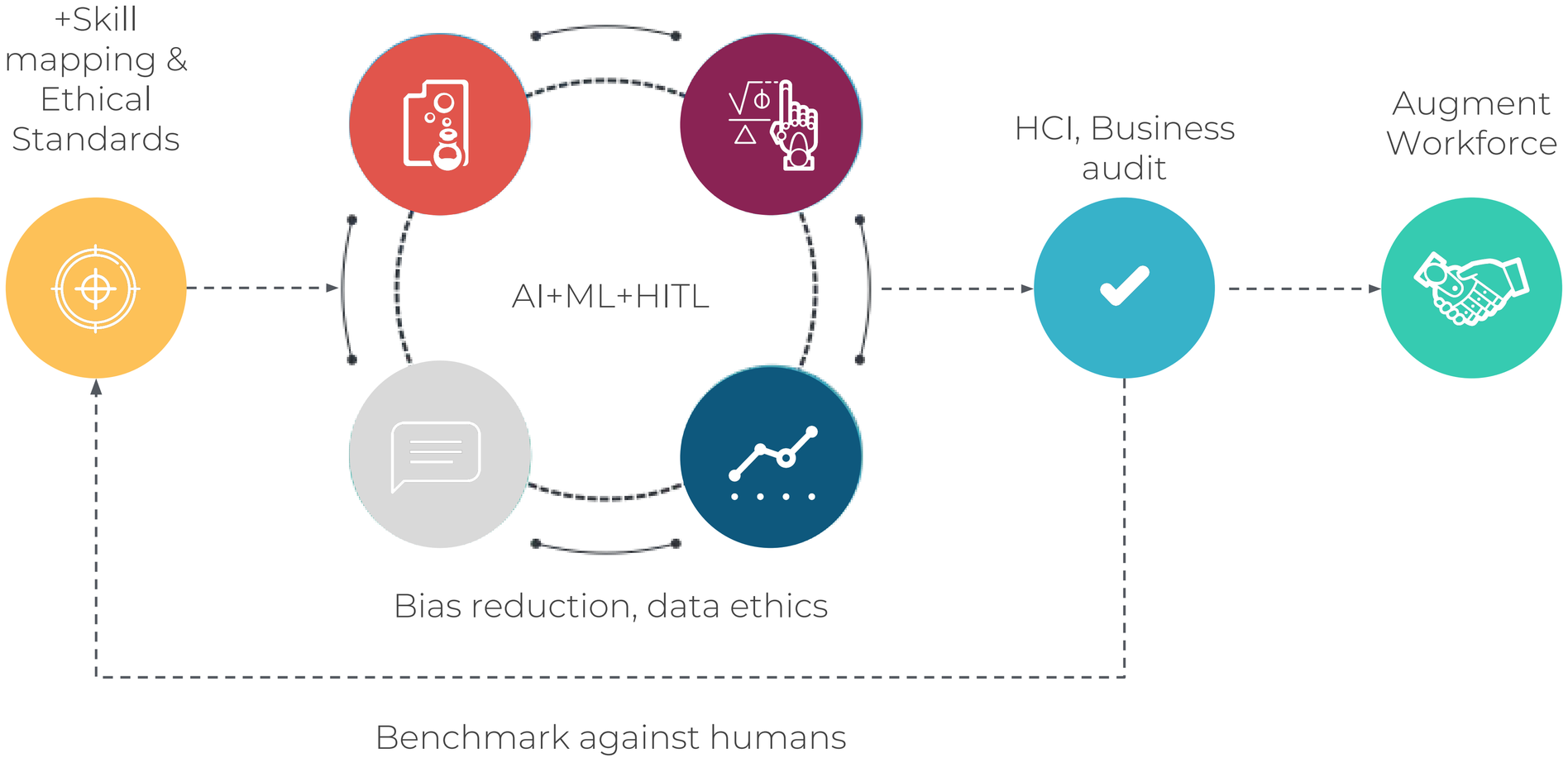
Ethical by design AI

- Systemic considerations (European Robotics Law)
- Awareness of ethical standards
- Professional codes of conduct (if necessary)
- Safety of use

Humans in AI


SCOPE
AI+ML+HITL
FINAL AUDIT
TRAIN WORKFORCE
SANDBOX TRAINING
LIVE TRAINING

Humans in AI


+Skill mapping & Ethical Standards
AI+ML+HITL
HCI, Business audit
Augment Workforce
Bias reduction, data ethics
Benchmark against humans

Closing thoughts

Human-Level AI is not scary.
What's scary is the unequal distribution of knowledge, access and utilisation power in AI.

That's why applying AI needs to be **ethical by design**.

Augmenting your workforce?

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Women in AI local Ambassador
IEEE Committee Member: Wellbeing and Ethics