



Big Data: Changing the paradigm for small farms

My background



SCHMIDT FAMILY
FOUNDATION



AiiM Partners



Since 2018 developed the incubation support

Strategic support

Leveraging the team's experience/knowledge
Agricultural, business model, financial, market, investment

AgriTech knowledge network

Farmers, academics, students

Events

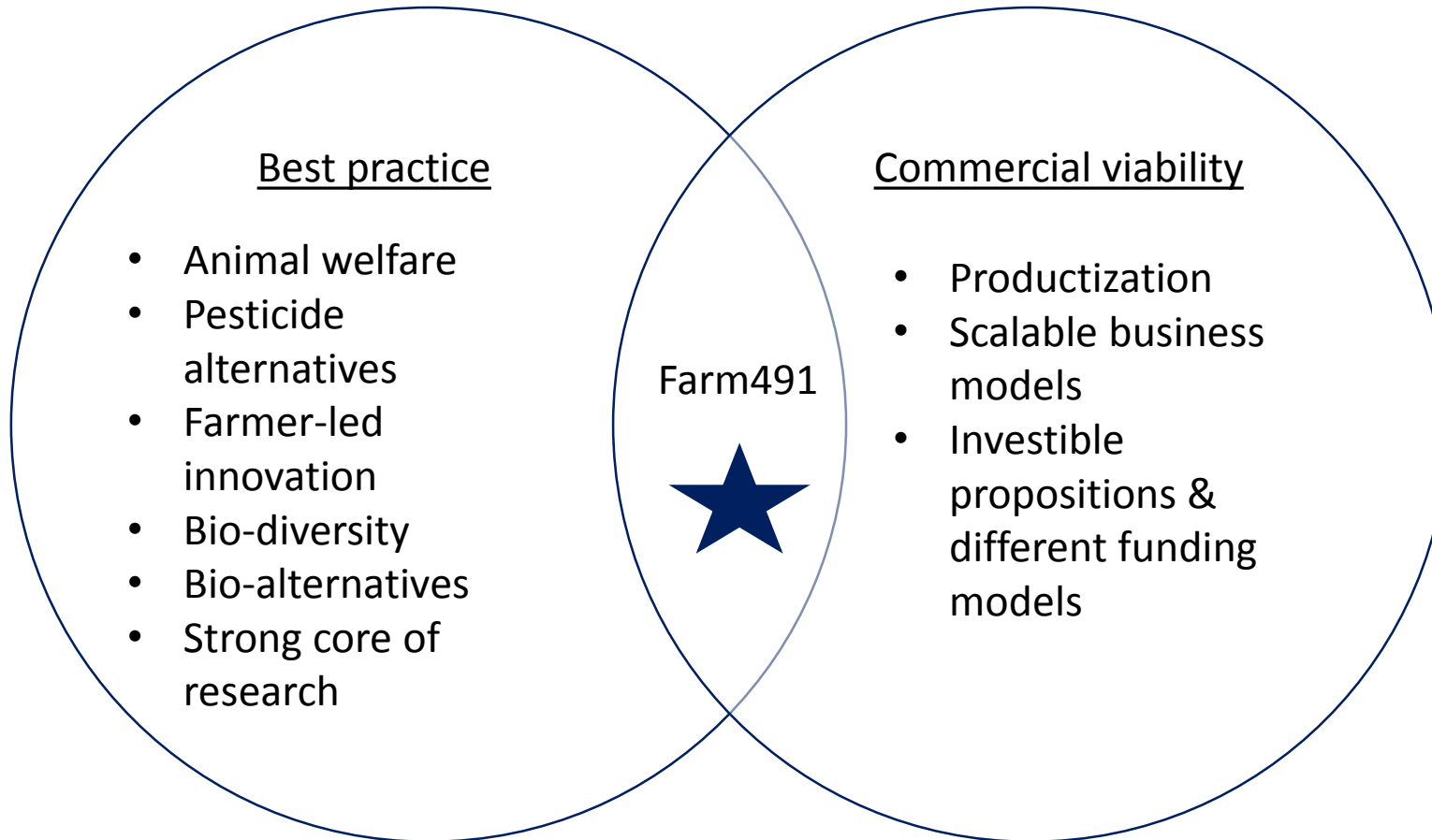
Driving thought leadership through speaking engagements
Showcases companies at trade shows, farmer-led workshops and investor days

AgriTech Community of entrepreneurs

Unique community of AgriTech companies



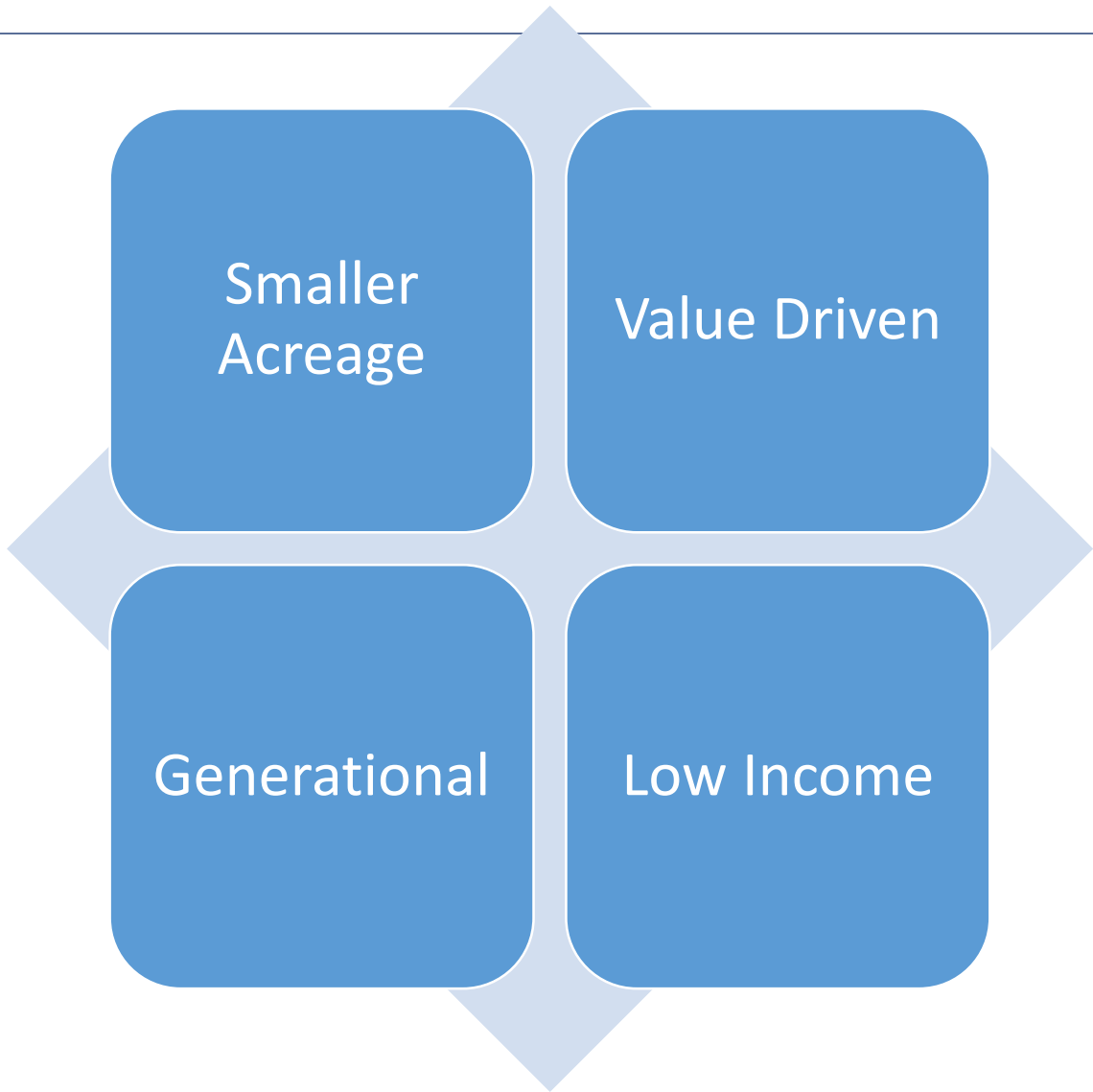
We believe the strongest scalable companies will marry best practise with commercial viability



WHAT IS A SMALL FARM?

“A large farm is one that’s a farm
twice the size of mine”

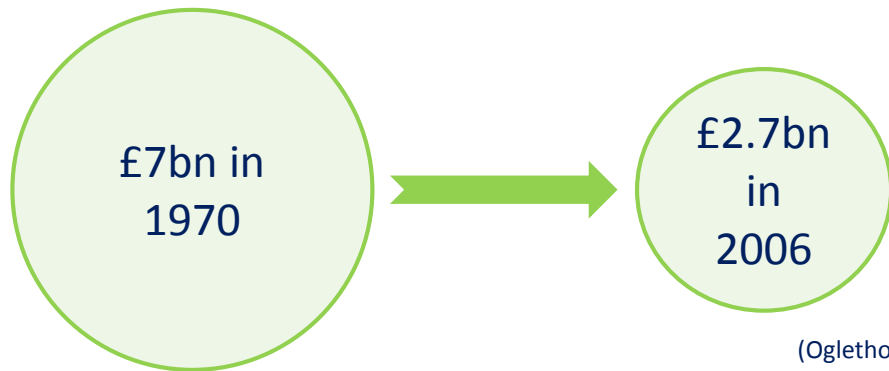
WHAT IS A SMALL FARM?



WHY DO WE CARE?

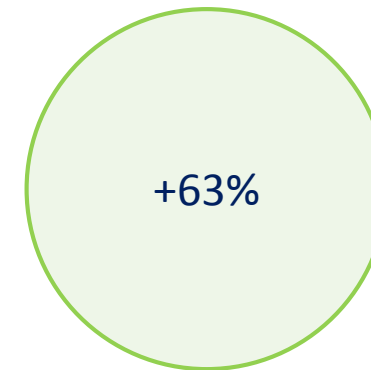
- Low profits due to disenfranchised within the food supply chain
- Environmental fragility as small farms either consolidate or focus on unsustainable practices
- Ultimately the inability to be agile and react to uncertain challenges

In the UK, total income from farms declined ...



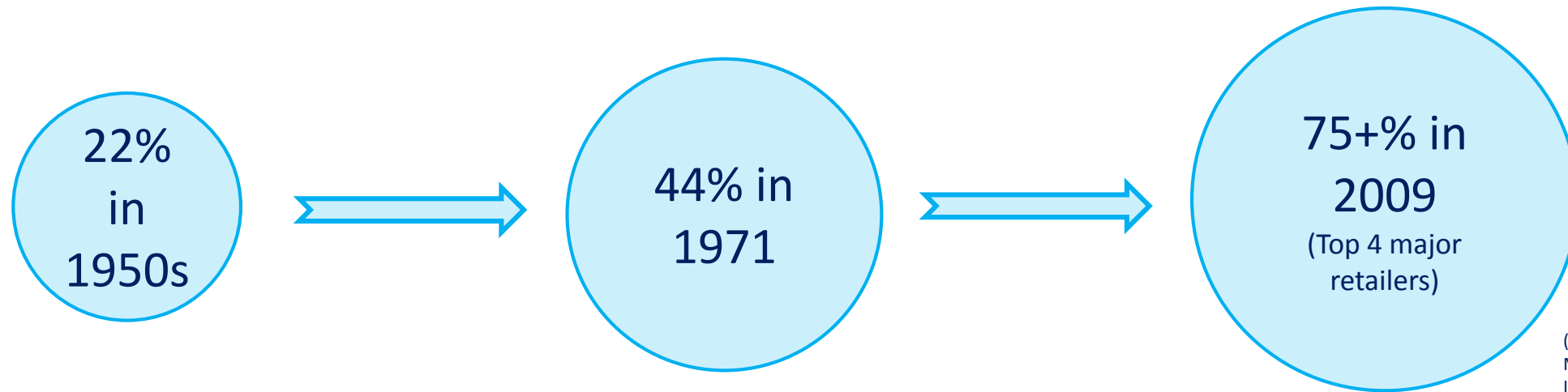
(Oglethorpe, 2005; DEFRA, 2007b; OECD, 2008)

% increase in treated area (ha) from 1990 to 2016



COMPOUNDED BY A SINGLE VIEW OF AGRICULTURE

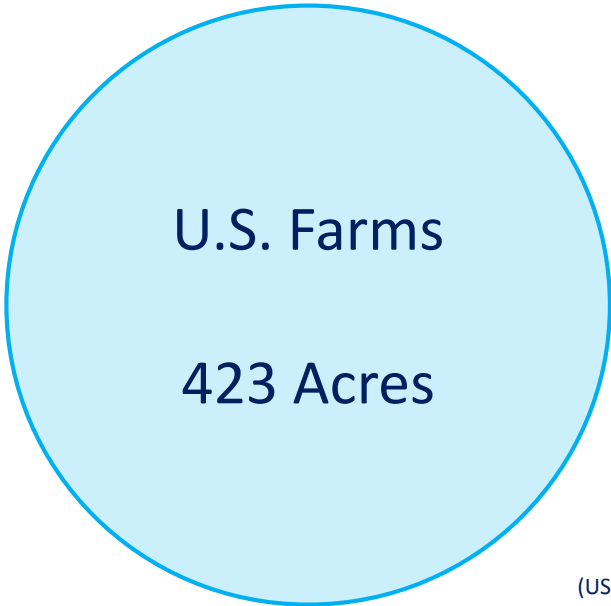
UK food sales through major retailers has increased:



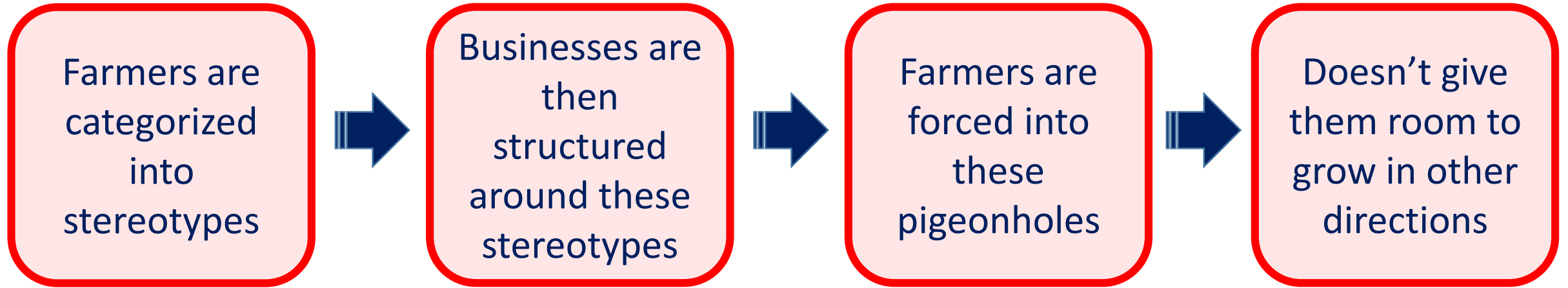
In their position of market dominance, retailers have effectively become gatekeepers to the consumer, controlling shelf space as well as consumer perceptions of quality and acceptable product standards

(Cooper, 2003; Dobson et al., 2003)

U.S. IS DRIVING UK AGRITECH DEVELOPMENT

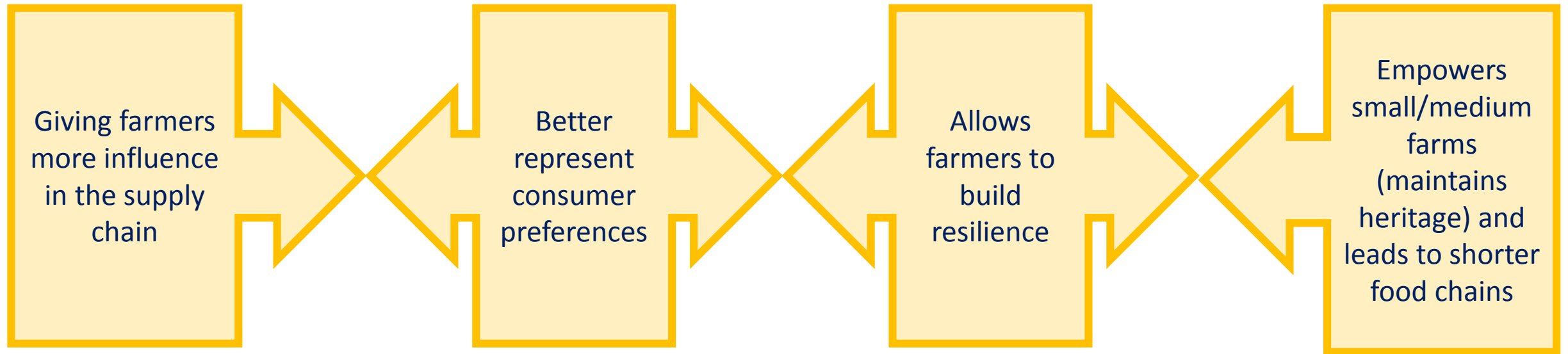


HIGH RISK OF HIDDEN HARM



E.g. If the tech only works for big farmers then we lose small farms and the heritage that comes with it

WHERE COULD WE BE?



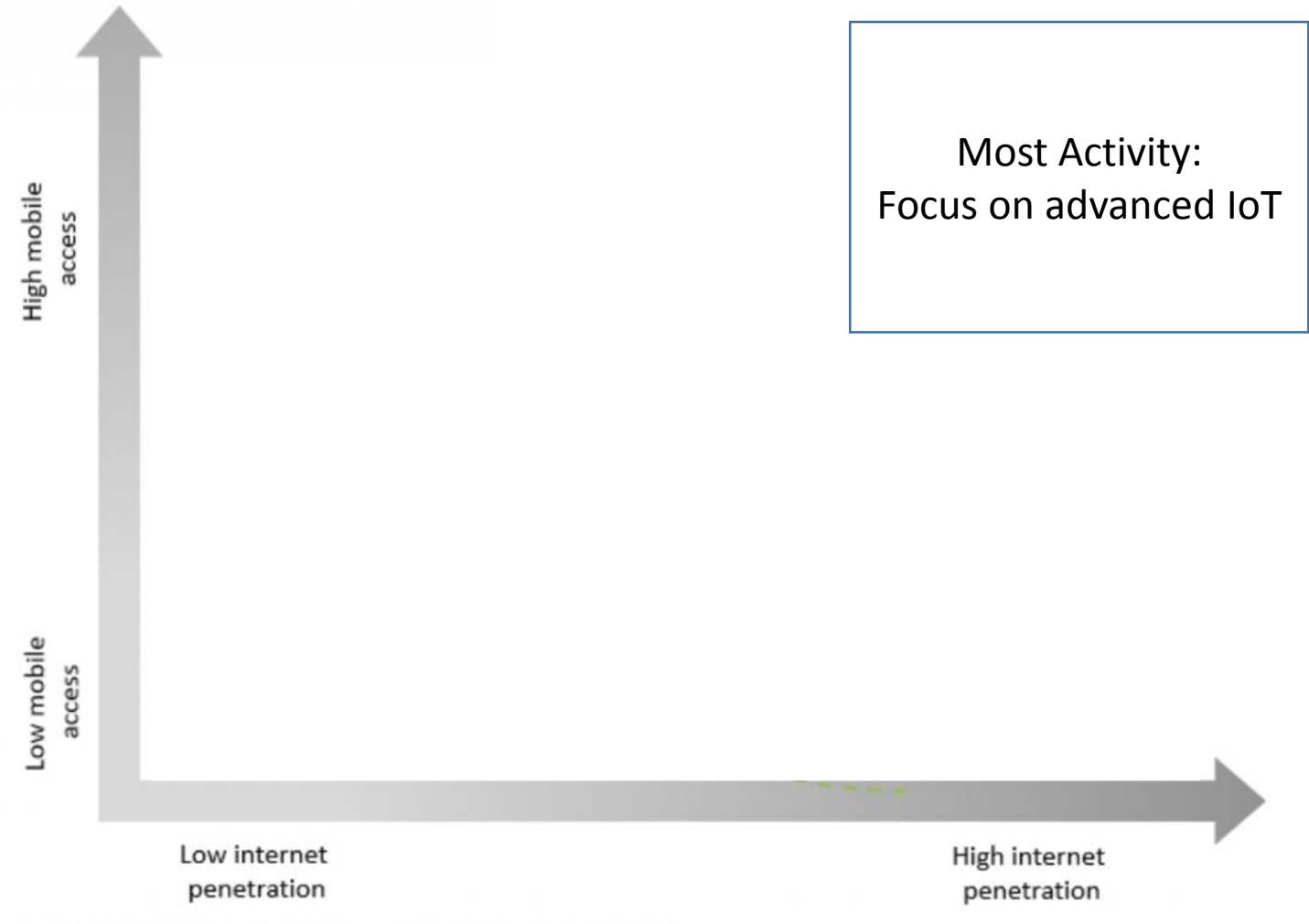
Agility is needed to balance complex challenges: environment, profits, equity

GLOBAL MIS-MATCH BETWEEN TECHNOLOGY FOCUS AND GLOBAL NEED

Roughly 2 billion people (26.7% of the world population) derive their livelihoods from agriculture

75% of agriculture is small family farms

Infrastructure challenges



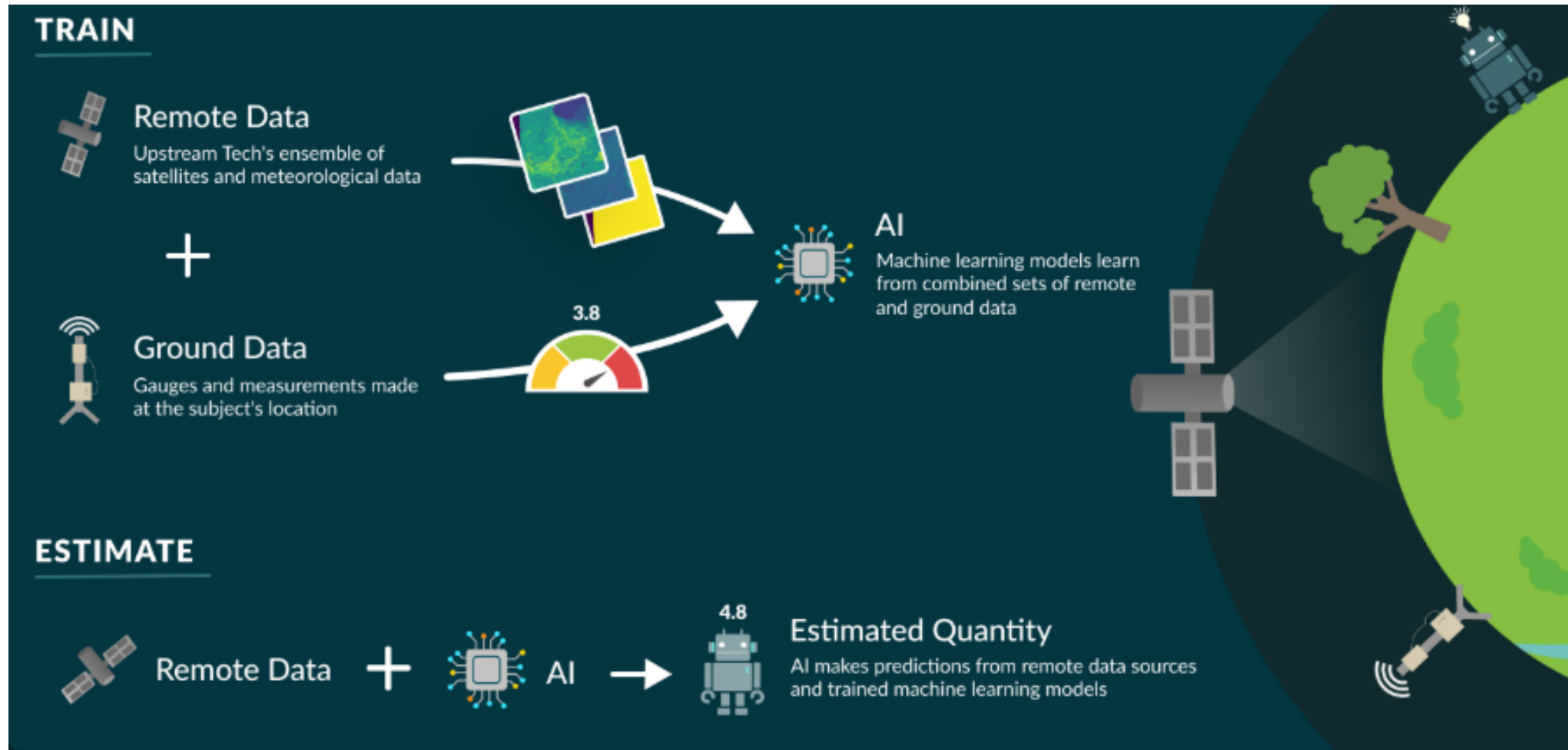
Infrastructure challenges

Type of Intervention	Tertiary enablers	<ul style="list-style-type: none"> 11. Granular data for improved policy-making 10. Training content (customized generation and dissemination) on optimal agronomic practices 	<ul style="list-style-type: none"> 12. Improved seeds for drought and heat, with robust models for understanding impacts on ecosystems 	
	Second-order enablers	<ul style="list-style-type: none"> 9. Post-harvest loss reduction including dry storage and refrigeration 8. Processing equipment for key cash crops 	<ul style="list-style-type: none"> 7. Market information; pricing and match-making between sellers and buyers 6. Crop [micro-] insurance 5. Funds for financing for smallholder farmers, agricultural processors and other SMEs in the agricultural sector 	
	Direct Interventions	<ul style="list-style-type: none"> 4. High-nutrient animal fodder 3. Livestock vaccines for key diseases/ pathogens, and cold-chain-enabled artificial insemination for improved breeding 2. Steady supply of fertilizer (conventional or via alternative mechanisms e.g. small-scale Haber-Bosch process or efficient composting) 1. Affordable on-farm implements for irrigation and weed removal 		
		Limited dependence on data-driven analytics	Conventional analytics and decision-making tools	AI and big data
		Dependence on big data/AI		

Artificial Intelligence and Data Analytics for Human Development
ITT, 2018

Using existing data sets to
drive decision management platforms

HOW BIG DATA PLAYS A ROLE



Upstream Tech website

A CALL FOR INNOVATION

- Big data cloud based processing to minimize need for hardware on small farms
- Near-real time solutions for low connectivity regions
- Using unorthodox data points to drive better performance within farms or access to finance
- Enabling shorter supply chains between small farms and big food service providers

Any questions?



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