



FROM START-UP TO SCALE-UP AND EXIT:

Lessons learned from 30 years of building and selling technology companies in transactions round the world.

David Farquhar

Intelligent Growth Solutions



5 Key Lessons

1. People: Culture as a Platform

- Never hire yourself
- Go diverse - it takes 15 players to score a try
- Permission to succeed → Proceed until apprehended

2. Capital:

- You don't "give equity away" → investors buy it AND SOME ARE USEFUL
- Matching your business: sectoral focus / the right thesis

3. "It depends" → being bold and thriving on uncertainty

4. Go after a BIG market → frame the problem in the customer's language

5. How positioning & differentiation drive strategy and define the business model

About IGS

- Vertical Farming **INFRASTRUCTURE**
- Founded by a real farmer 2013
- £75m raised
- £25m invested in R&D
- 26 patents in 6 families
- Fully productised
- Total Control Environment Agriculture (“TCEA”)

S2G VENTURES
SEED 2 GROWTH

Chicago, IL

AGFUNDER

San Francisco, CA

Scottish Enterprise

Glasgow, Scotland

Ospraie
AG SCIENCE*

New York City, NY



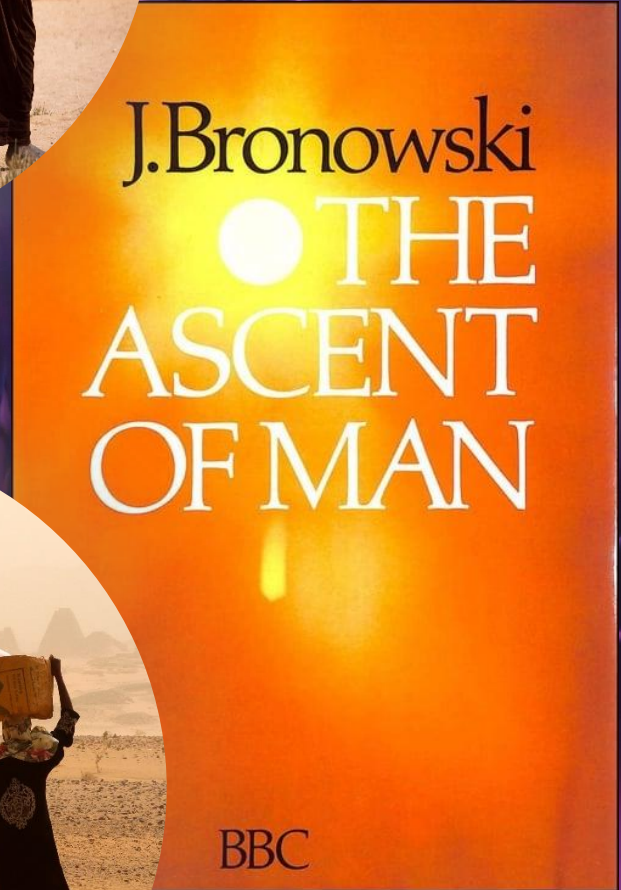
Amsterdam, NL & Zug, CH



Chicago, IL

DC THOMSON

Dundee, Scotland



**We humans
used to be nomads...**



...then 10,000 years ago agriculture began...in the Middle East & Latin America!



-300,000 years



We'll need more food in the next 30 years than the previous 10,000 combined

Source: UN

And yet: 12-39% of the Earth's land surface will develop novel climates*

*Williams, Jackson, Kutzbach, 2007



7,400tn calories

Source: FAO



URBANISATION
ARABLE LAND
POLLUTION
CLIMATE

FOOD

The letter 'O' in the word 'FOOD' is replaced by a white wireframe globe of the Earth, showing the continents of Africa, Europe, and Asia. The globe is centered on the Atlantic Ocean and is set against a dark blue background with a repeating pattern of circular motifs containing various agricultural products like grains and fruits.

ENERGY
PESTICIDES
FRESH WATER
POPULATION

POLITICS REGULATION COVID WAR

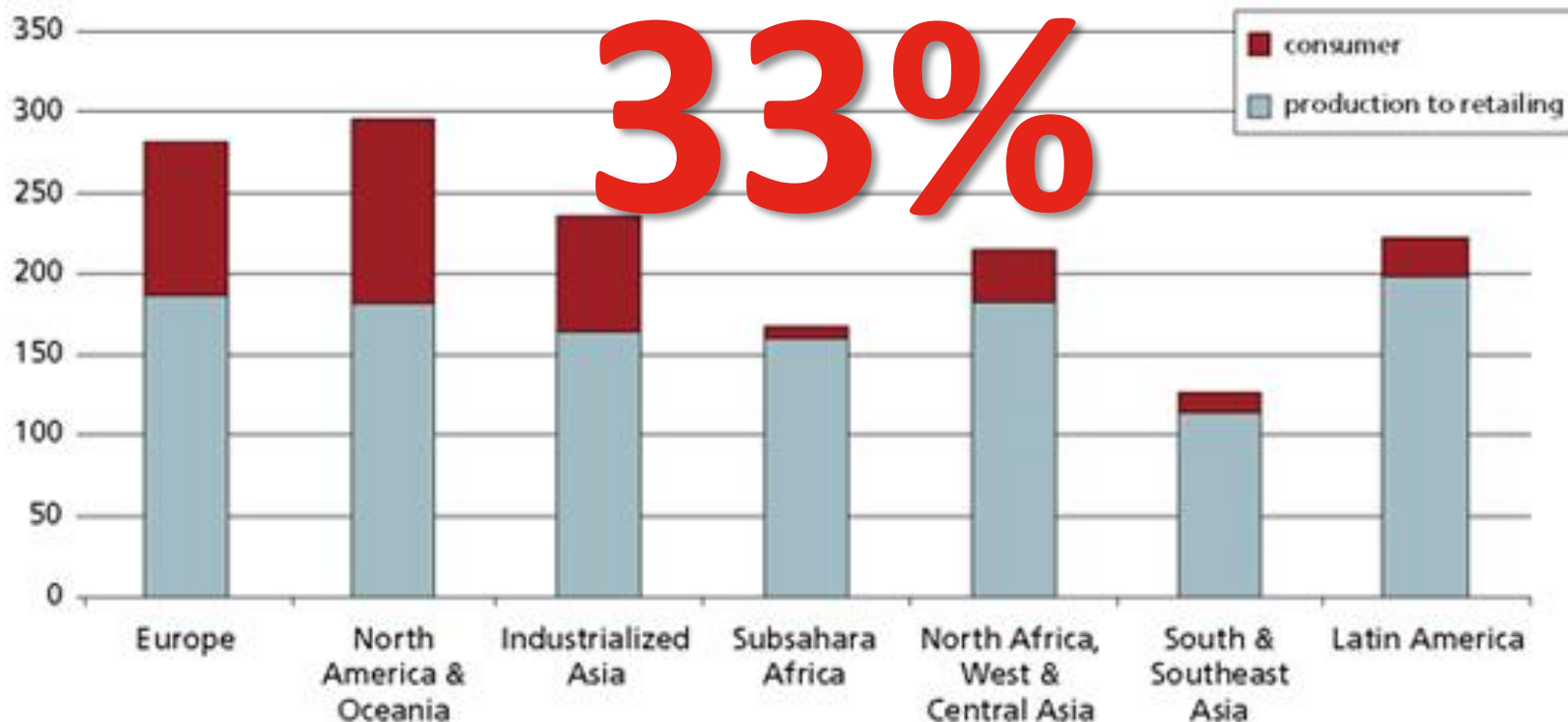


20% DAIRY FOOD LOSSES
In Europe alone, 29 million tonnes of dairy products are lost or wasted every year.

20% OILSEEDS & PULSES FOOD LOSSES
Every year, 22% of the global production of oilseeds and pulses is lost or wasted.

20% MEAT FOOD LOSSES
Of the 243 million tonnes of meat produced globally, over 20% is lost or wasted.

Per capita food losses and waste (kg/year)



45% ROOTS & TUBERS FOOD LOSSES
In North America & Oceania alone, 5 814 000 tonnes of roots and tubers are wasted at the consumption stage alone.

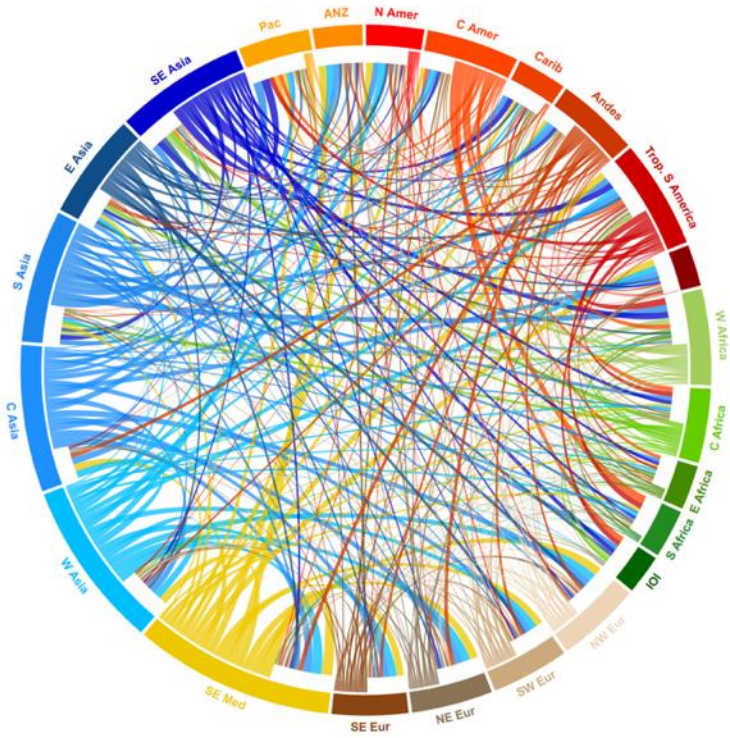
45% FRUIT & VEGETABLES FOOD LOSSES
Along with roots and tubers, fruit and vegetables have the highest wastage rates of any food products; almost half of all the fruit and vegetables produced are wasted.

35% FISH & SEAFOOD FOOD LOSSES
8% of fish caught globally is thrown back into the sea. In most cases they are dead, dying or badly damaged.

30% CEREALS FOOD LOSSES
In industrialized countries, consumers throw away 288 million tonnes of cereal products.

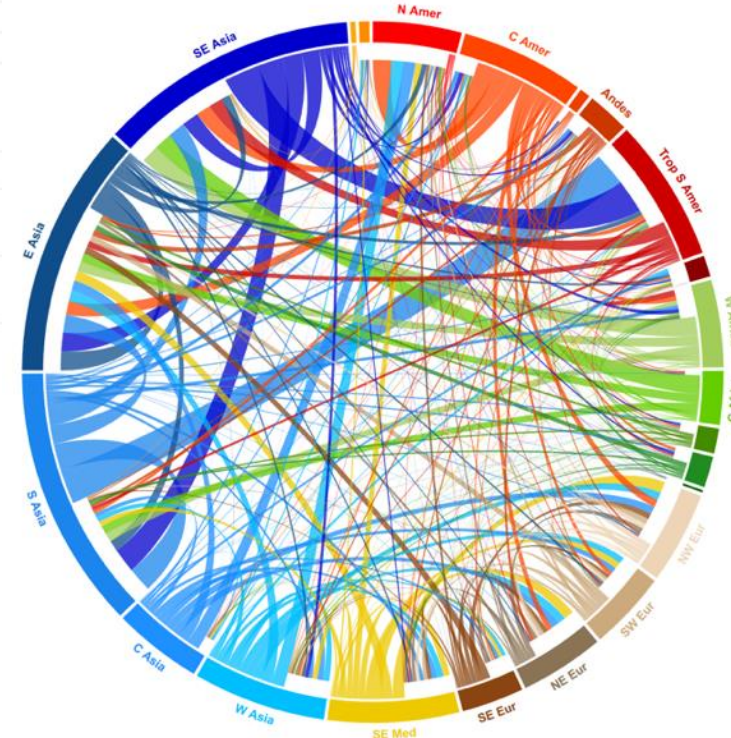
Agriculture → Post-harvest → Processing → Distribution → Consumption

<http://www.fao.org/save-food/resources/keyfindings/infographics/roots/en/>







Origin	Northwest Europe
Consumer	Australia and New Zealand
Total	183.7

Top Crops			
Crop	Name	Value	Metrics
	Sugar	108.5	g/capita/day
	Apples	72.7	g/capita/day
	Oats	2.5	g/capita/day

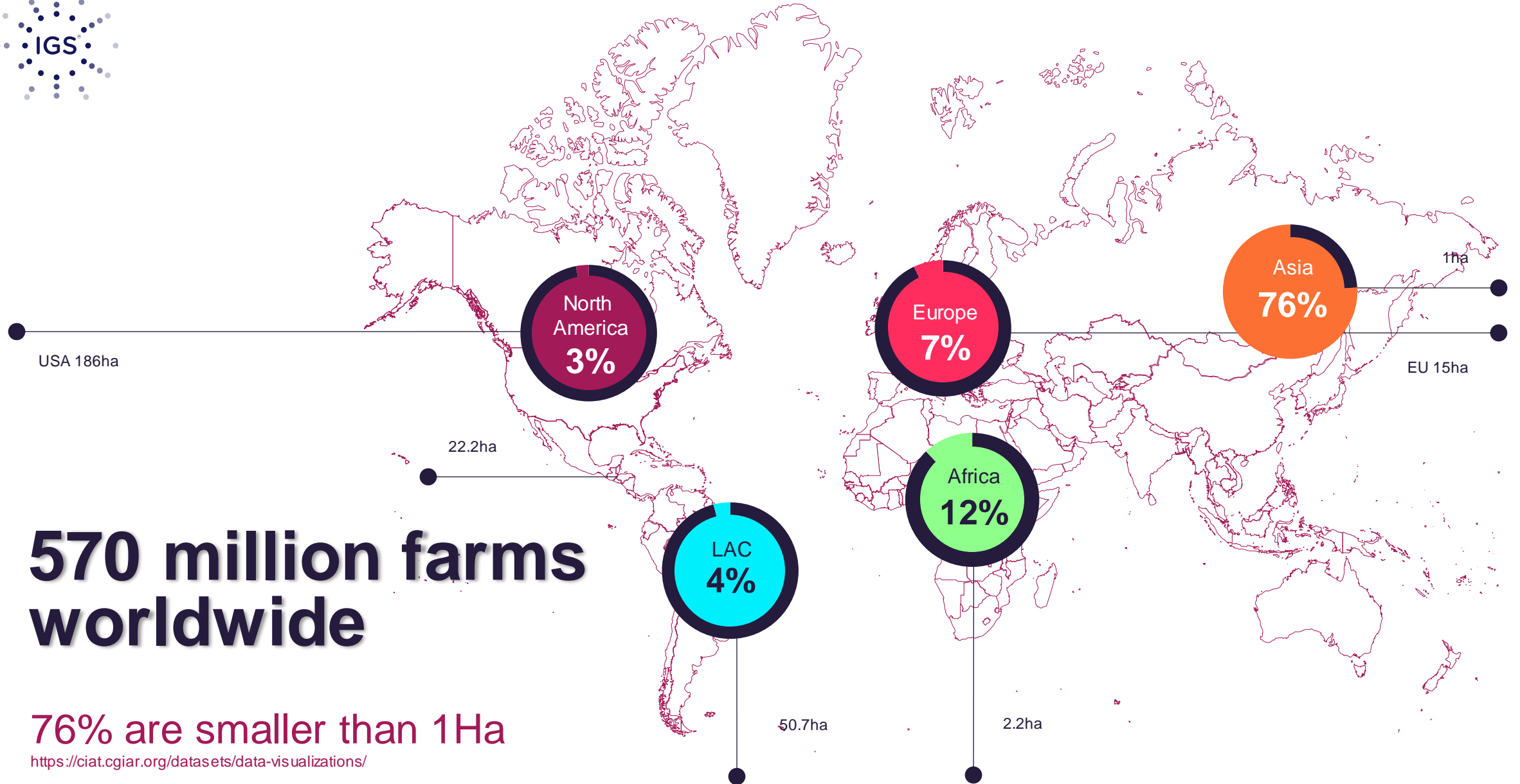


Origin	South Asia
Producer	Tropical South America
Total	844,044,566

Top Crops			
Crop	Name	Value	Metrics
	Sugarcane	789,663,138	tonnes
	Bananas and plantains	23,697,012	tonnes
	Rice	21,647,734	tonnes
	Coconuts	3,310,558	tonnes
	Mangoes mangosteens guavas	2,084,163	tonnes

72% of world food is ex/imported

<https://ciat.cgiar.org/datasets/data-visualizations/>



570 million farms worldwide

76% are smaller than 1Ha

<https://ciat.cgiar.org/datasets/data-visualizations/>



Farming

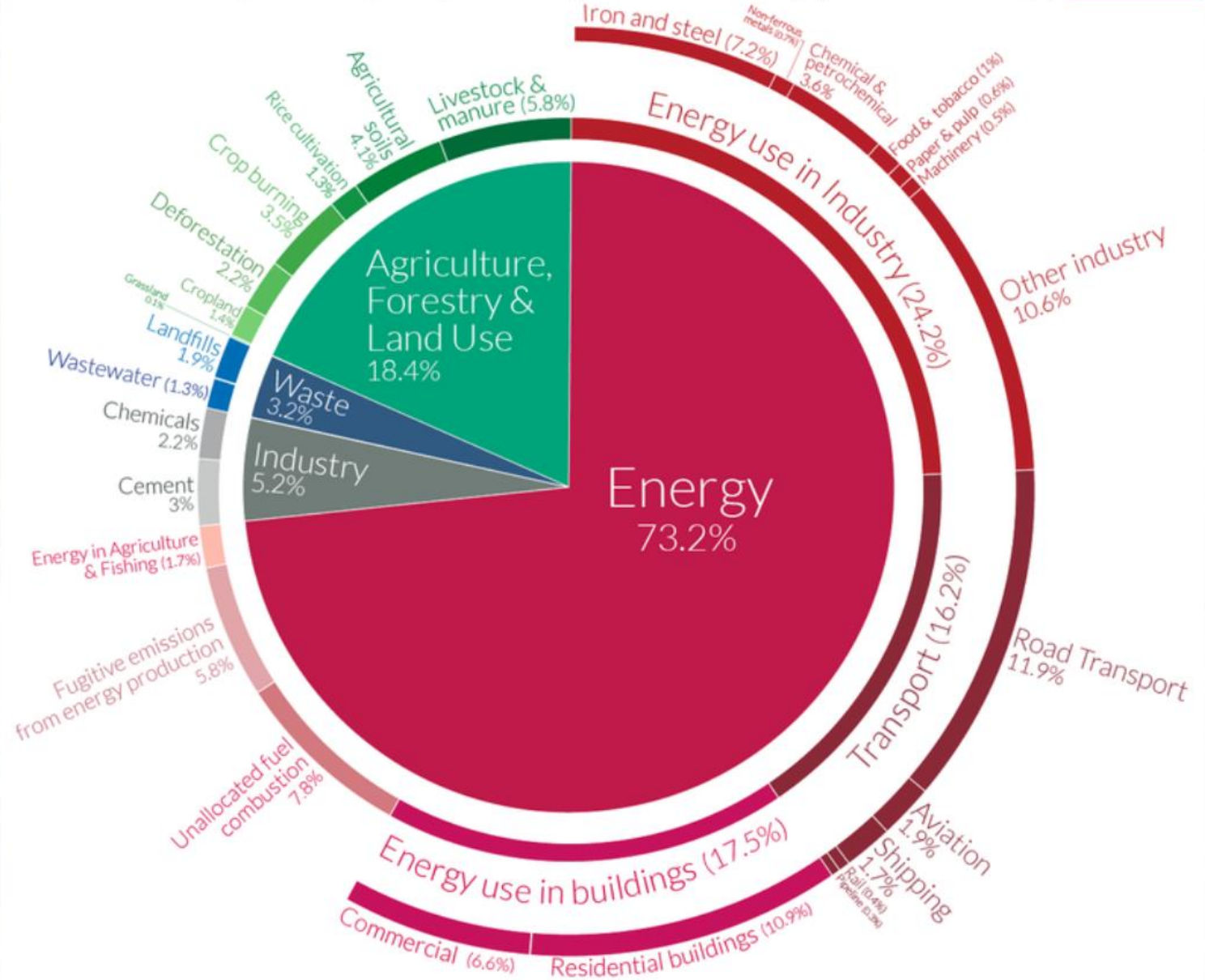
- Global \$
- Pace of
- Agri =
- Farming



Global greenhouse gas emissions by sector

Our World in Data

This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO₂eq.



OurWorldinData.org - Research and data to make progress against the world's largest problems. Source: Climate Watch, the World Resources Institute (2020). Licensed under CC-BY by the author Hannah Ritchie (2020).





**We will never grow crops
for commercial sale**

Productised, Scalable, Industrial, Modular & Agile



Enabler of Agriculture 4.0

We only grow for R&D, optimising performance and developing growth recipes



16

71

72

73

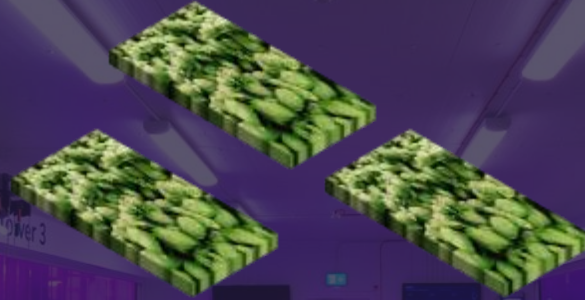




How to make a vertical farm



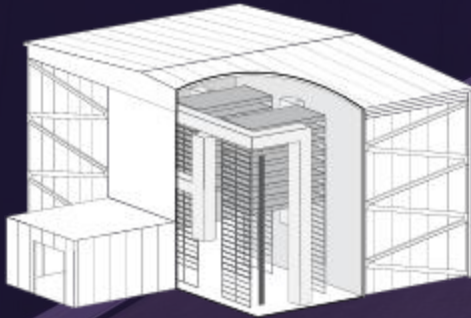
Take a **field**



Cut it into trays the size of snooker tables



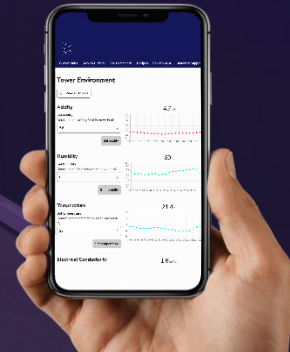
Stack them 9m high



Put them in a box



Make perfect **weather**



Control it with your tablet or phone

IMPACT

Our Farmers

New breed urban farming entrepreneurs

seeking to buy rather than build

Traditional broadacre farmers

seeking better starter plants, diversification, keeping the next generation on the land

Existing indoor growers 45% waste

seeking better starter plants, extend the growing day and season to maximise returns

Forest managers 65% waste

seeking better starter plants & less predation: crop trees / reforestation / afforestation

Plus: Governments seeking sustainable food security and reforestation from localised production in-country

Who do they serve?

Food Service (Contract Catering)

Food manufacturers

Grocery Retailers

Hospitality and tourism

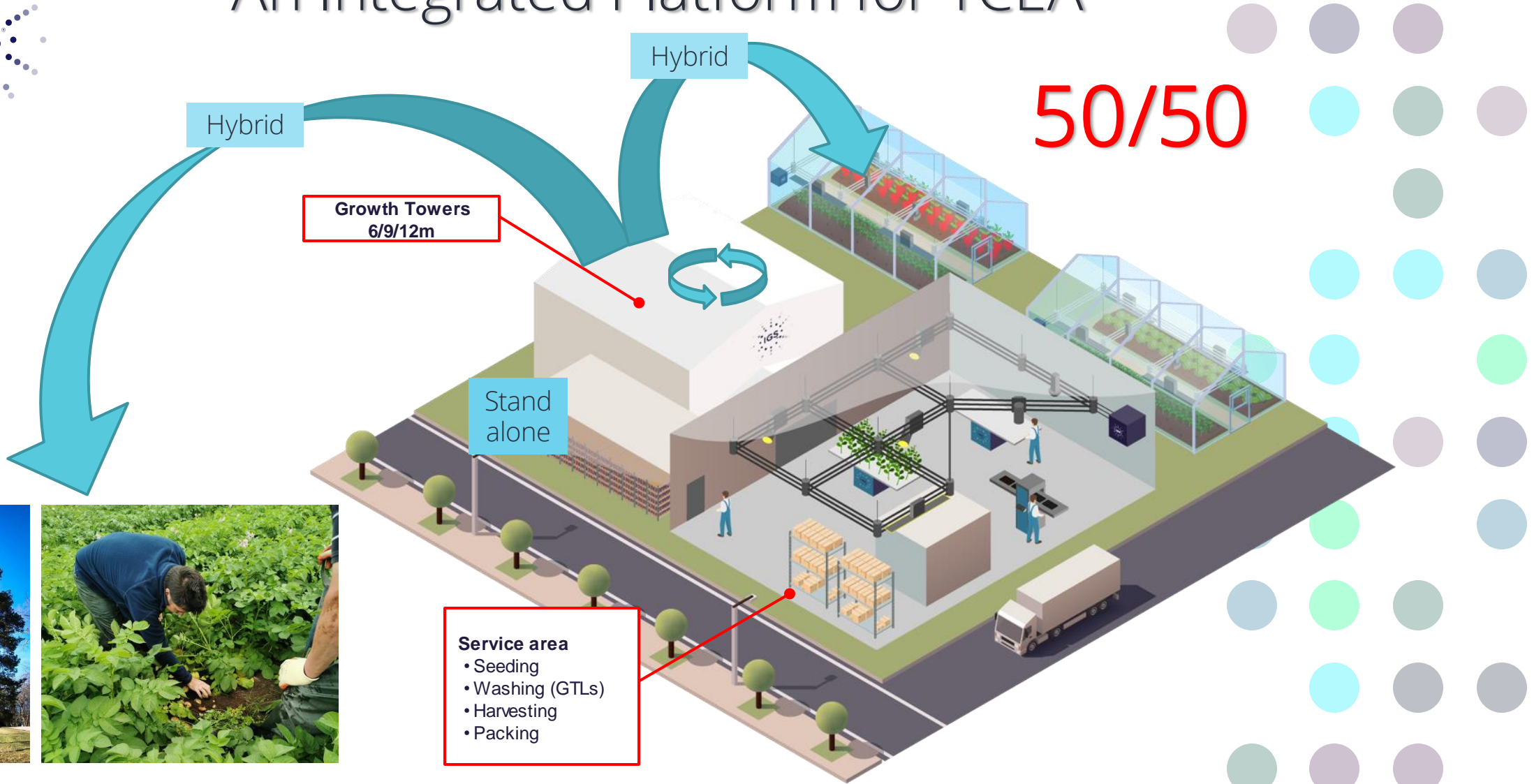
All wanting reliable supplies of fresh, premium, sustainable ingredients

Landowners

Wanting local growing; lower rejection and predation rates



An Integrated Platform for TCEA



The Grower is our Customer



3-Es



Excellent produce



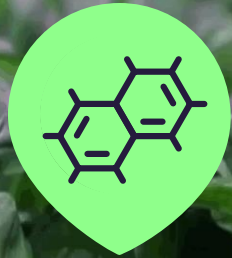
Economic viability



Environment friendly



Healthy
and safe



Nutrient-rich and
chemical free



Extended
shelf-life

Full-cycle crops

Supporting farmers globally

Chillies

Micro-greens

Dill

Parsley

Pak choi

Fennel

Lettuce

Mustard

Radish

Sorrel

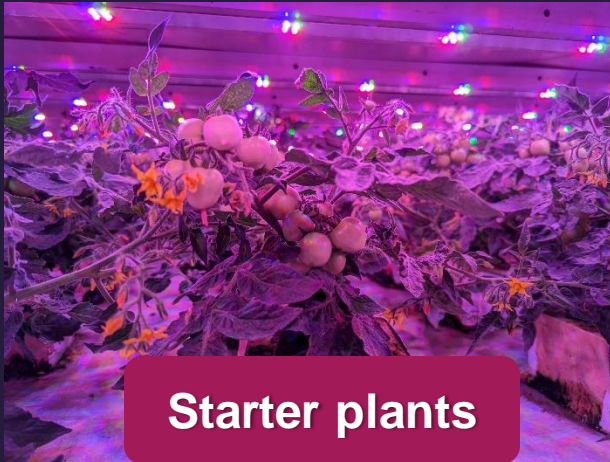
Pea shoots

Mint

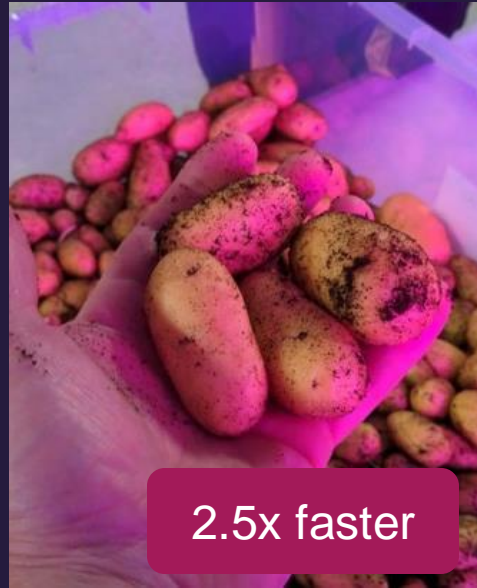
Basil

Flowers





Starter plants



2.5x faster



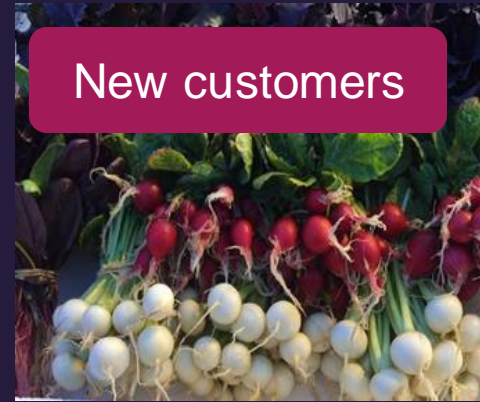
40% cheaper
6x faster



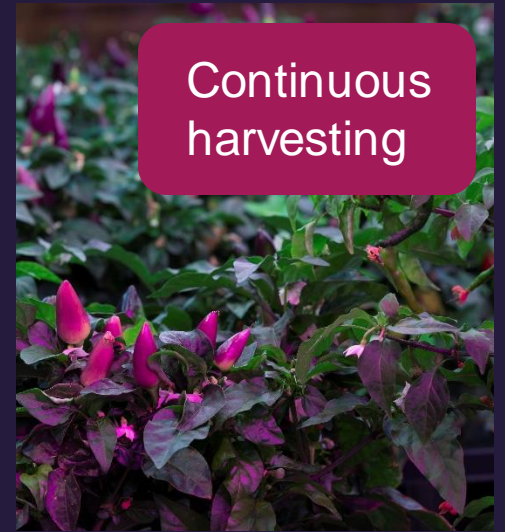
80% less waste



New markets



New customers



Continuous
harvesting

>20% IRR
5-year payback

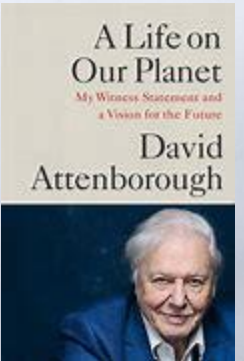
Greatest crop diversity
on the planet



Zero emissions
Collapsing food miles
250:1 water savings
10,000:1 smaller footprint
Zero pesticides
Zero hydrocarbons

“The IGS farm technology could have a huge impact on reversing habitat loss.”

- WWF Scotland



IGS and the Environment:

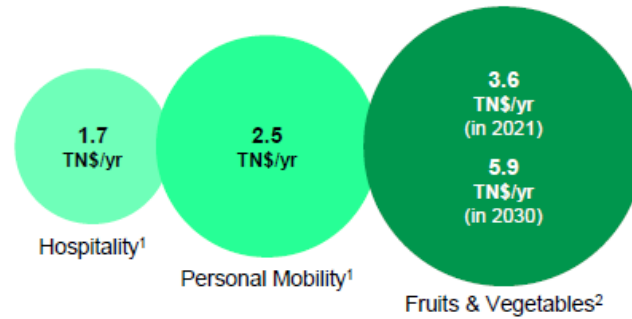


The Massive TAM confirmed by UBS

Food production is a massive undisrupted market...

The market is **RIPE** for disruption—food production is a massive undisrupted market

\$3.6tn market in 2021 anticipated to reach \$5.9tn by 2030



At the earliest stage of tech transformation

Industry	% Disrupted ³	Incumbent & Capitalization
Retail		amazon (\$1.1tn ⁴)
Hospitality		airbnb (\$70bn ⁴)
Personal Mobility		Uber (\$46bn ⁴)
Agriculture	<0.1% ⁵	

Millennials & GEN Z revolution—the food sector has a massive TAM and is RIPE for disruption

By 2050, millennials will be the largest consumer group⁶

- Consumers increasingly prefer local, tasty and sustainable produce
- Conventional agriculture fails to meet these criteria

The priorities of millennials and Gen Z fit well with IGS' value proposition

GEN X

- Familiar taste
- Functionality
- Cost focus

~30% 2015 → ~20% 2050

% share of total disposable income

MILLENNIALS

- Healthy and wellness focused
- Willingness to pay a premium
- Authentic and experiential
- Environmentally conscious

~15% 2015 → ~50% 2050

% share of total disposable income

GEN Z

- Impact focused
- More sustainability focused
- Higher adoption of technology

~0% 2015 → ~30% 2050

% share of total disposable income



Source: % share of disposable income estimates as derived from the fundstrat's Coming of Age Report (June 2018)

- 1 Expressed as TAM. Source: Leading investment Banks research reports
- 2 Expressed as TAM; converted to USD from EUR based on FX rate of 1.18 as of 24 August 2021; Fruits & Vegetables 2021 TAM extrapolated based on 2030 TAM and 2015-30 CAGR. Source for 2015 and 2030; Oliver & Wyman Fruit Logistics Trend Report
- 3 As online penetration, which is based on public filings and third-party research

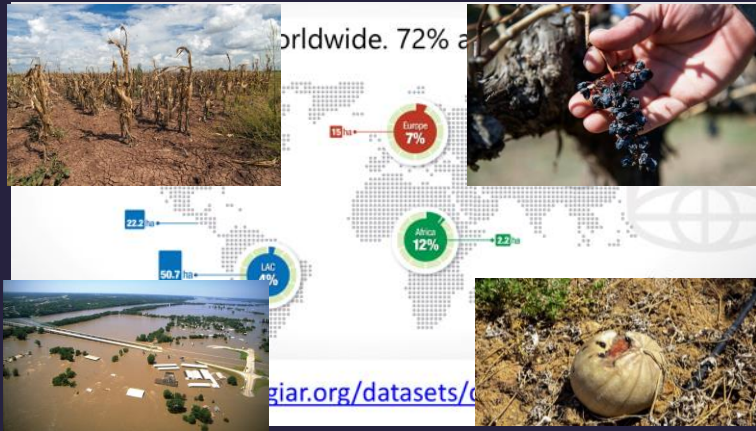
4 Fully diluted market cap as Factset 17 June 2022

5 Company estimate

6 Management's estimates based on fundstrat Coming of Age Report

Competition

Do nothing



Not an option

Do it themselves



Going bust



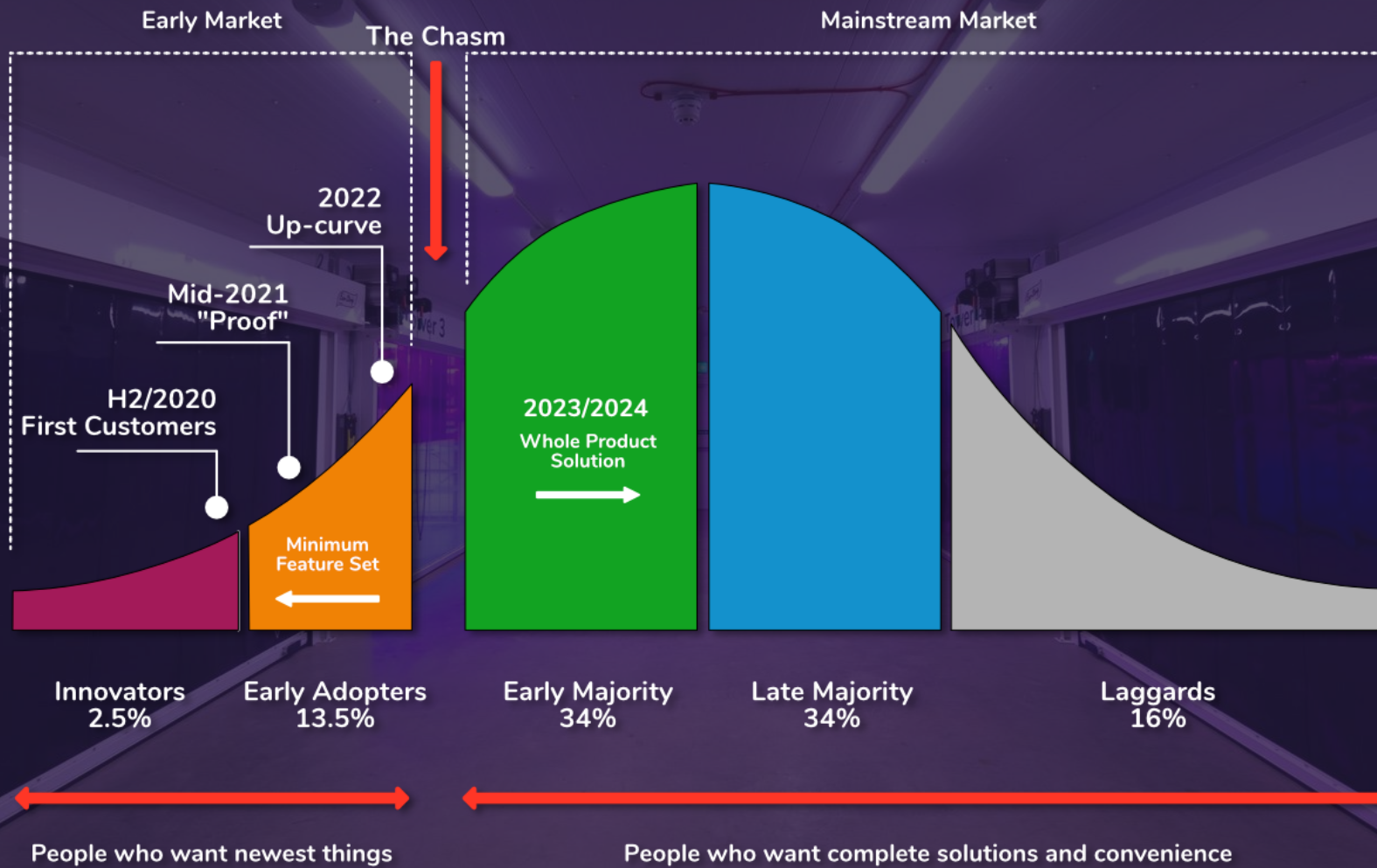
Direct substitutes

LACKING:

Productised, Industrial, Scalable, Modular & Agile

Alternatives Limitations

Timing fit with market growth





We have to ignore the macro-economic flack to focus on the mission





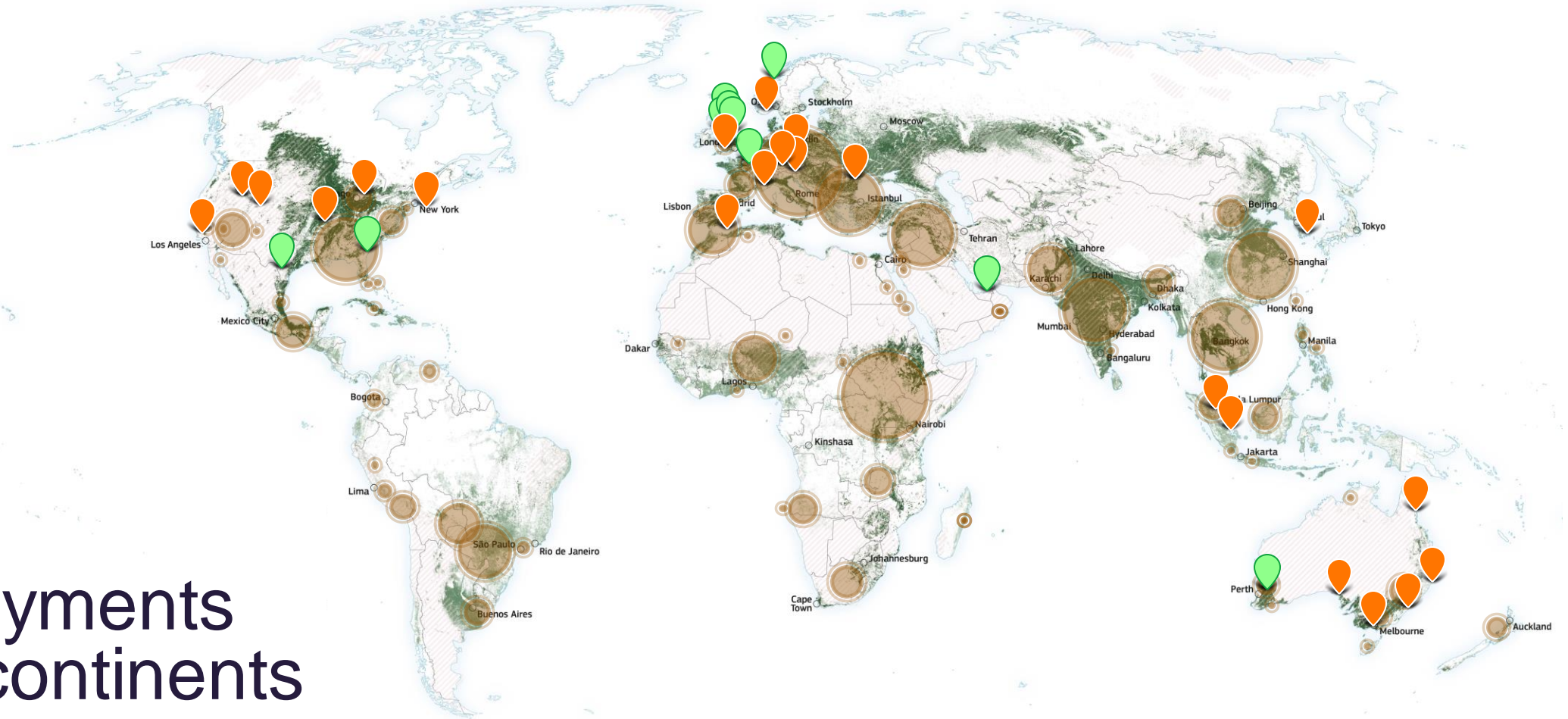
Vertical Farming is struggling...why is really obvious



- IGS
- Infinite Acres
- Urban Crop Solutions
- Bowery Farming
- Freight Farms
- InFarm
- Kalera
- Vertical Future
- AeroFarms
- Plenty

Most of the others being swept downstream having raised up to 20x equity

Answer? Name the last farmer to build his own combine harvester



Deployments on 4 continents

Supporting local food challenges

Severe degradation

IGS-powered Farms (built or started)

Roll-out



INNOVATION: BLOOD, SWEAT AND DREAMS

The
Economist

A new 3-part documentary series exploring the origins of innovation. Featuring exclusive interviews with pioneering entrepreneurs and some of the most creative businesses on the planet spanning 10 countries and 4 continents.



● See **AGRICULTURE 4.0** at 11'53" here

● [Innovation: Blood, Sweat and Dreams – Film 1 \(economist.com\)](http://economist.com)

