The Future is Now

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Peritum Agri Business summit
21st August, 2019

The better the question. The better the answer.
The better the world works.

EY
Building a better working world

Circle of Business

The Duality of Strategy

- The board's stakeholders require a long-term view on value
- Yet, Short-term pressures - quarterly reporting - Analyst & Media attention
- Average CEO tenure for is 4 years
- Measuring long-term value is complex
- Organisational value includes intangible as well as tangible assets.
  - Balance sheet value = 75% ($44 Trillion) of market value globally = Intangible
  - Capital vs/ Labour-intensive {S/W companies have < 10% Value recorded on B/S}
- What is NOT included in traditional Balance sheet value?
  - **Human Capital**
  - Relationships
  - Contracts & IP
  - Processes & Technology
  - Operating model
- What gets measured, gets done

Changing Dynamics of Corporates

- Detroit 1990 - Top 3 companies:
  - $36B Mkt Value
  - $250B Revenues
  - 1.2M Employees
- Silicon Valley 2014 – Top 3 companies:
  - $1 Trillion Mkt Value
  - $250B Revenues
  - 137K Employees
- 2019 – Top 3
  - $3 Trillion – Mkt Value
  - $600 Billion Revenues
  - 800k employees

WhatsApp had 55 employees when FB bought them for $19 Billion (2014)

Food and agribusiness: how to feed a growing world

Significant transformation, agriculture technology (AgTech) investment and consolidation at all levels

By 2050, agriculture will need to feed 40% more people, produce 70% more food

Population is growing

Population is expected to grow to **9.6b** people by 2050

By 2050, **70%** of the world's population is expected to be urban[1]

Middle class is expected to double in size **X2**

The Asia-Pacific region is expected to account for nearly **1/2** of the world's population

Consumption needs are changing

$180b in global sales of clean label food and beverage products by 2020

Global meat consumption expected to increase by **2.4kg** per person by 2023

More than **12%** of the global population will be undernourished[2]

Digital/technology are transforming the landscape

$5b+ invested in AgTech in 2015[3]

Drones, apps and **software** are becoming just as normal as seed, chemicals and equipment

50% of the current workforce processes are expected be automated

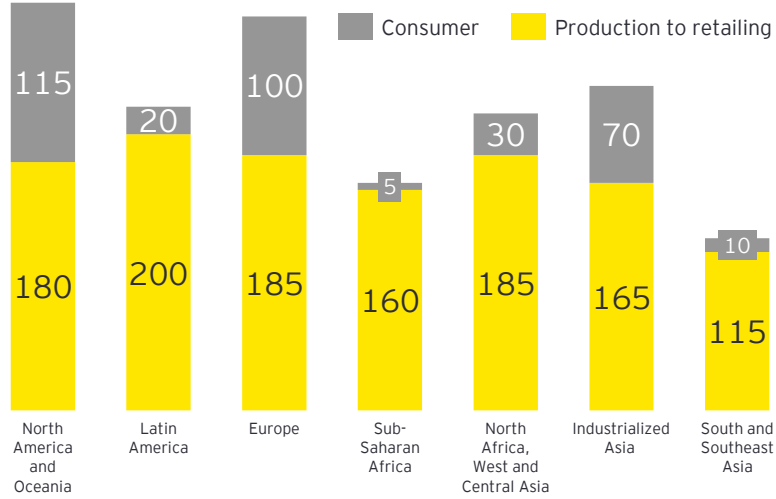
The precision agriculture market is projected to grow to **$3.7b** by 2018, representing an ~14% compound annual growth rate[3]

Source: 1. United Nations, 2. FAO, 3. AgFunder News (February 2016)

However, food waste is rising which causes a further mismatch between supply & demand

Current Challenges in Agri Business

Per capita food losses and waste (kg/year) across regions



Key drivers of food waste

From production to retailing:

- In developing countries food waste occurs due to financial, managerial and technical constraints in harvesting, storage and cooling facilities.
- At a retail level, large quantities of food are wasted due to quality standards.

Consumer:

- Preference towards availability, variety and freshness of food.

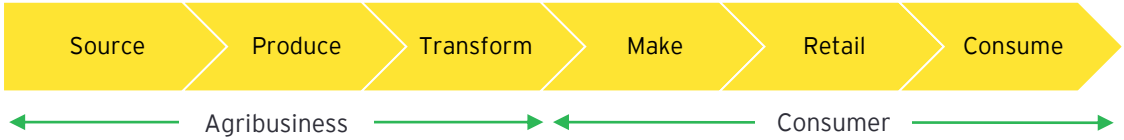
Each year, 1.6b tons of food worth $1.3 Trillion are lost or wasted – almost 1/3rd of the total amount of food produced globally

Current Challenges in Agri Business

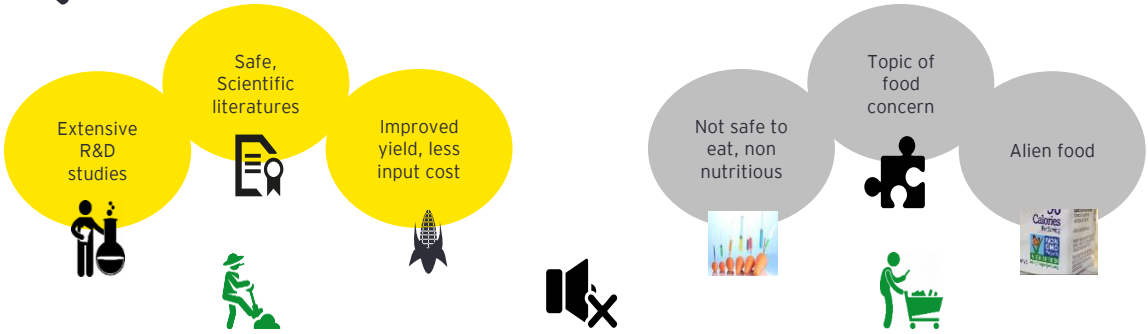
Ag firms mainly focused on customers (farmers), but, have not prioritized ag technology communication to consumers

Ag firms always have focused on ag tech communication to customers (farmers).

Ag firms have been missing ag tech communication to consumers.



Case Study: "Genetically Modified Crops" / "Genetically Engineered Crops" / "GMOs"



The impact of not communicating well with consumers led to regional moratoriums of GMO products, stringent regulations and consumer protests, resulting in lost revenue.

Source: EY Analysis

Digital Agriculture – Can we feed a rapidly growing world?

Industry Challenges and Ag 3.0

How big are the challenges?

In 2017, agriculture currently:

- Uses 36% of total arable land
- Consumes 70% of world's fresh water
- Produces 25% of world's carbon dioxide
- But over 12% of global population is still undernourished

By 2050, agriculture will need to:

- Feed 40% more people (9.2b)
- Produce 70% more food
- Use only 5% more land

How will the industry meet these challenges?

Ag 3.0 is the next revolution in agriculture allowing the industry to:

- Feed the growing and changing demand for food
- Increase the ability to cope with climate change such as droughts
- Reduce environmental impact of agricultural pollution such as nitrogen loss
- Conserve the earth's limited natural resources such as water
- Improve food safety and traceability

Ag 3.0

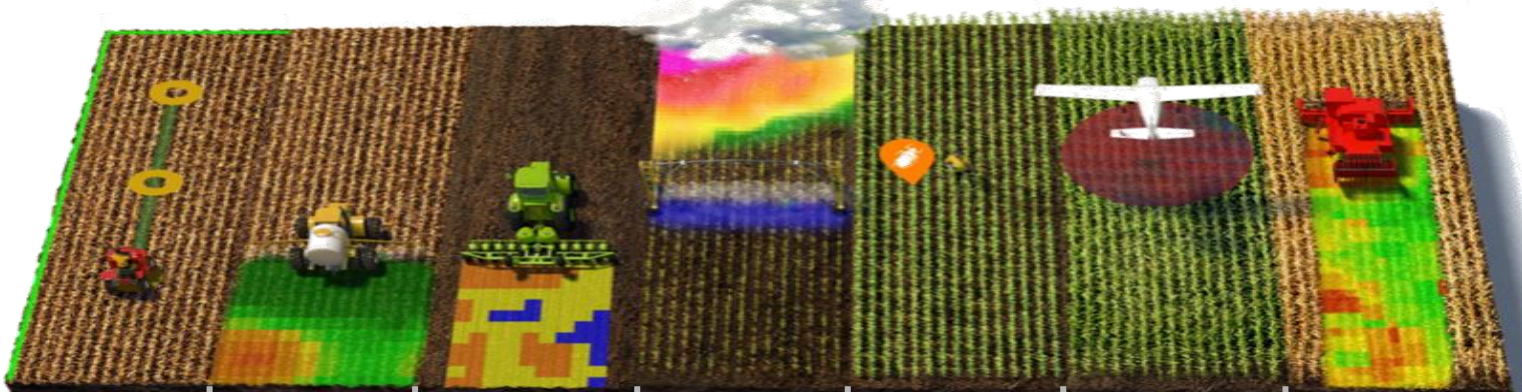
Ag 1.0: *Mechanization – 1900 – 1930*

Ag 2.0: *Genetic Modification* 1990 - 2010

Ag 3.0: Happening now

- Precision Agriculture
- Data-driven farming decisions
- Data transfer and sharing
- Internet of Things

Data Coming from the Field

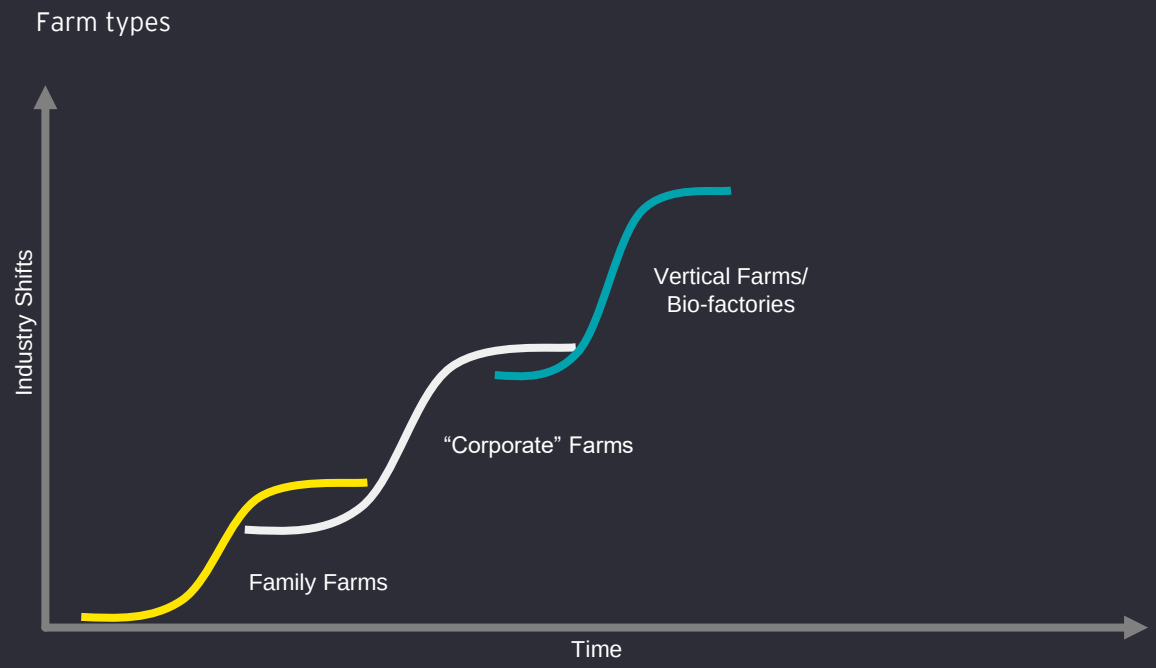


	Field/ Soil	Field Application	Planting	Weather	Crop Scouting	Imagery	Harvest/ Machine
Data Types	• GPS • Texture • Soil Moisture • Volumetric Water • Capacity • Drainage Classification • Nutrient	• Crop Type • Equipment Type • Prescription (Fertility, Product Applied Treatments, Stabilizers Rates, Timings Methods)	• Crop Type, • Equipment Type • Product Applied • Treatments, Rates • Timings • Methods	• Temperature, • Wind, • Precipitation, • Humidity, • Barometric Pressure, • Dew Point, • Growing Degree Days	• Crop, Growth Stage • Crop Condition/Rating, • Damage, • Population, • Nutrient Deficiencies, • Pests (weeds, insects, diseases), • Soil Condition	• Plant Health, • Thermal Imaging, • Pest/Disease Pressures, • Field Size, • GPS	Harvest: • Crop type, • Yield, • Moisture Content, • Test Weight Machine: • Equipment Type, Speed • Fuel Usage/Levels, • Machine Load Status
Stake-holder	Producer, Ag Retailer, Agronomic Software	Producer, Ag Retailer, Equipment, Nutrients, Agronomic Software	Producer, Ag Retailer, Equipment, Seed/AgChem, Agronomic Software	Producer, Agronomic Software	Producer, Agronomic Software	Producer, Ag Retailer, Agronomic Software, Equipment	Producer, Agronomic Software, Equipment

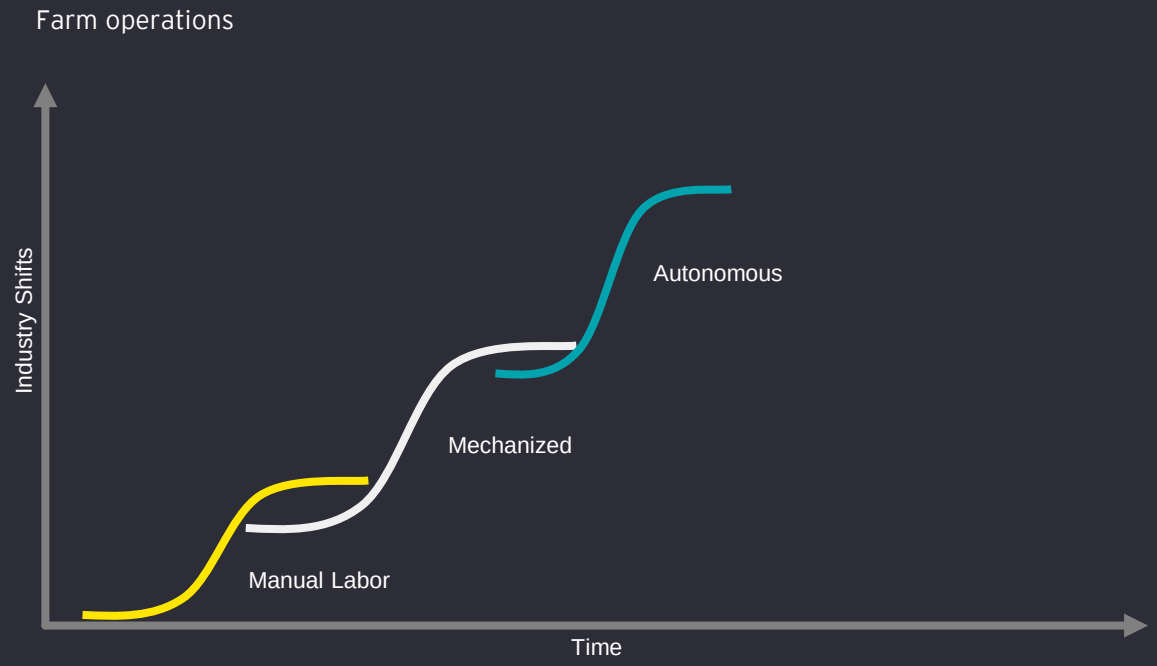
Food by Design – Video

https://www.youtube.com/watch?v=F1lAet-hJKY

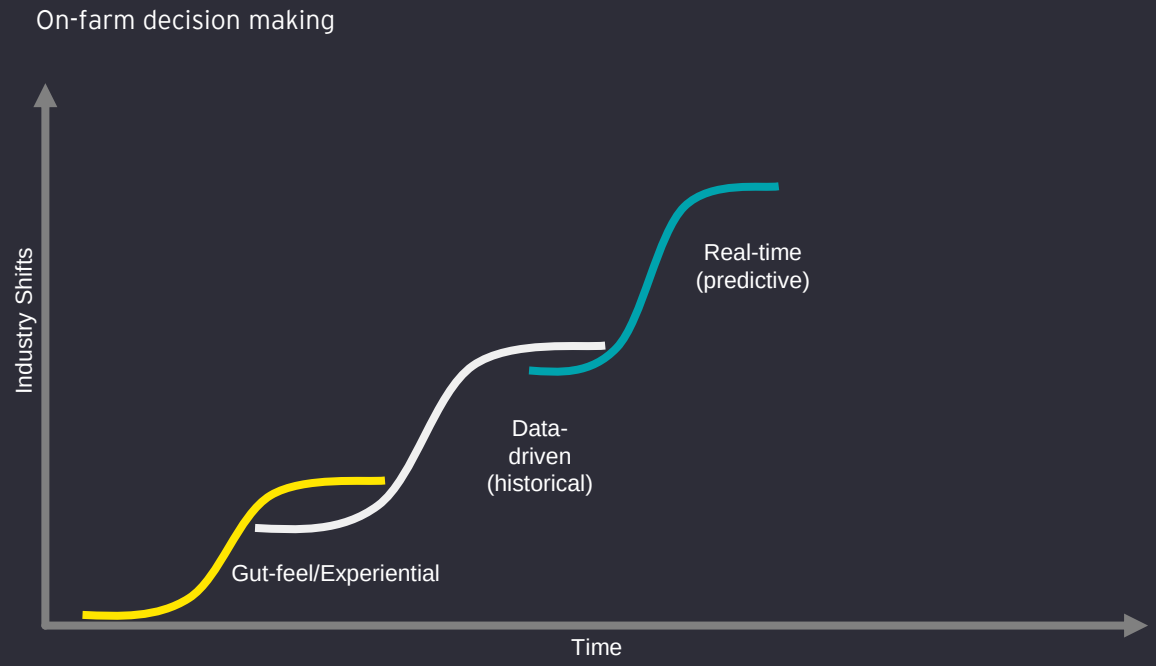
S-Curves


Farm types
Industry Shifts
Vertical Farms/
Bio-factories
“Corporate” Farms
Family Farms
Time

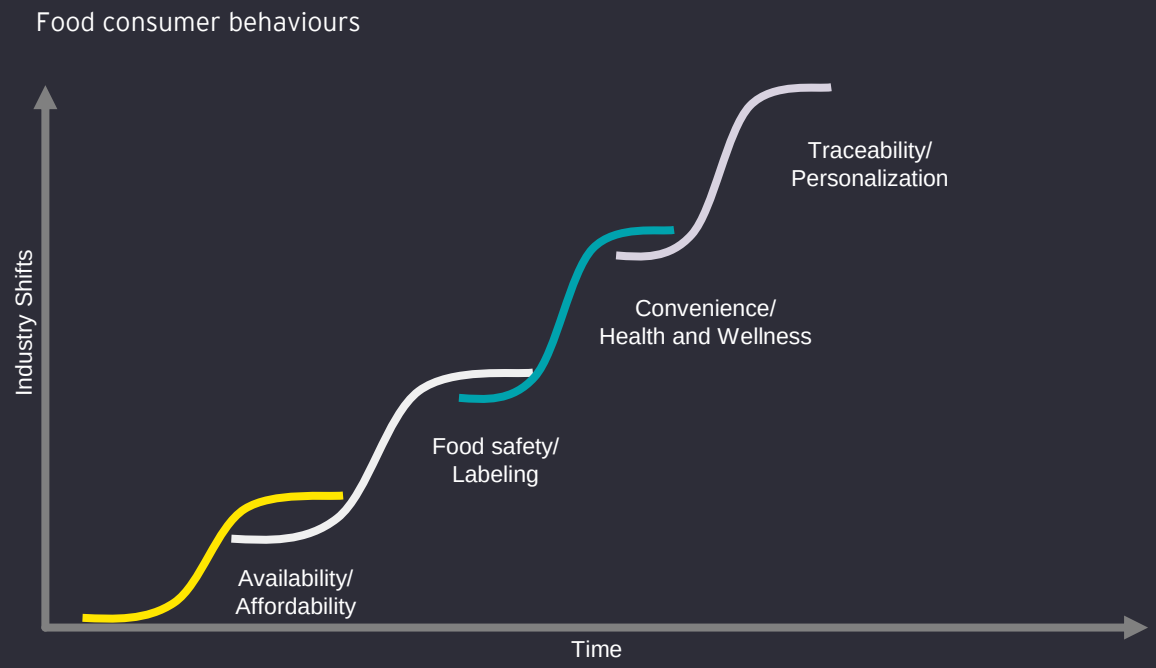
S-Curves


Farm operations
Industry Shifts
Autonomous
Mechanized
Manual Labor
Time

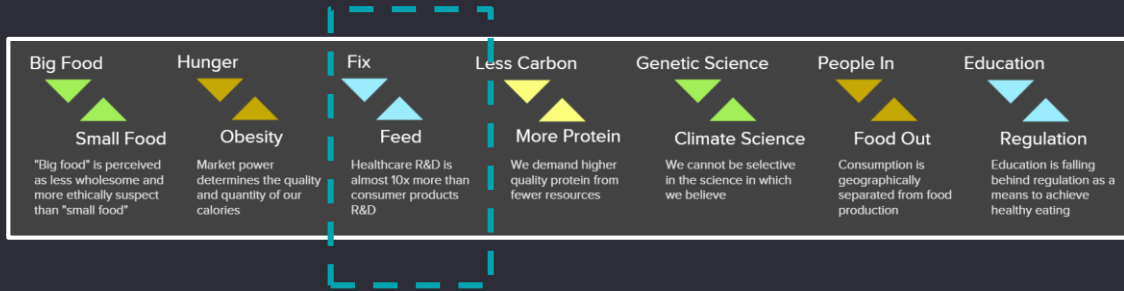
S-Curves


On-farm decision making
Industry Shifts
Real-time
(predictive)
Data-
driven
(historical)
Gut-feel/Experiential
Time

S-Curves


Food consumer behaviours
Industry Shifts
Time
Availability/
Affordability
Food safety/
Labeling
Convenience/
Health and Wellness
Traceability/
Personalization

There are opportunities and challenges in the paradoxes of modern agriculture...



We spend over $70 billion on pharmaceutical R&D in the US every year...

We spend approximately $330 billion on pharmaceuticals...

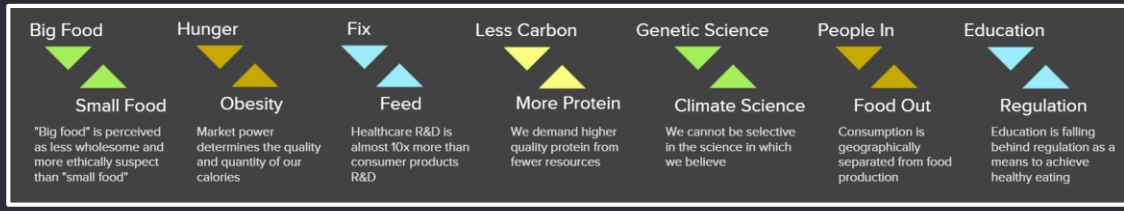
Pharma: $330 Billion

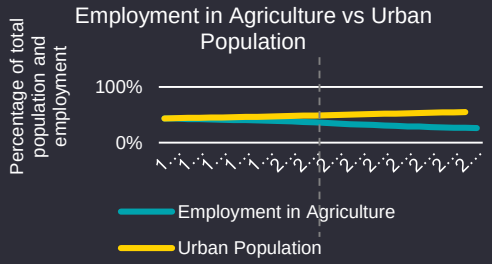
We spend approximately $7 billion on food R&D in the US every year...

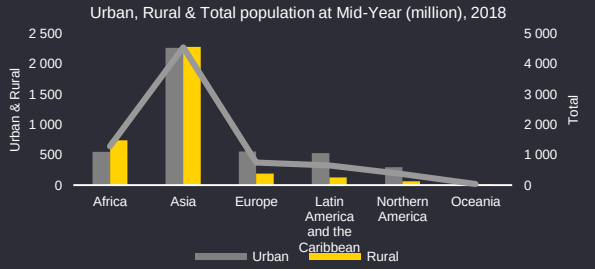
We spend approximately $1.5 trillion on food...

Food: $1.5 Trillion

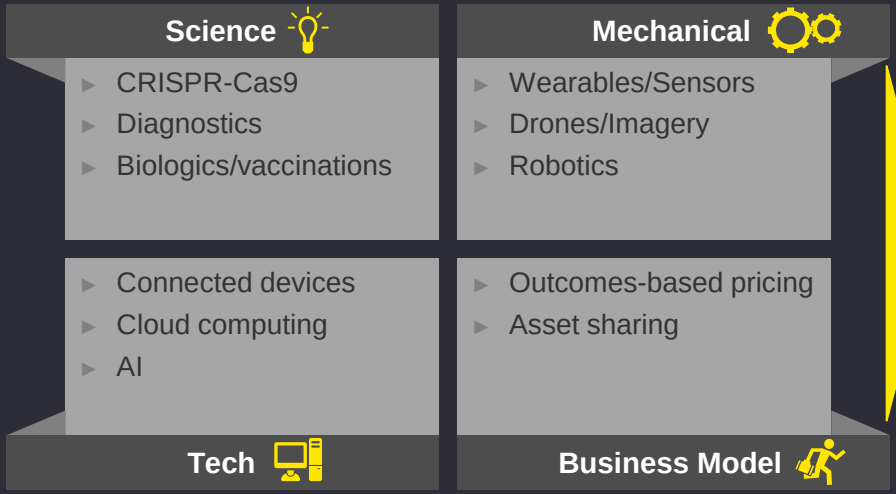
There are opportunities and challenges in the paradoxes of modern agriculture...







Innovation is multi-dimensional …



… but what's **next**?

The fourth industrial revolution has started, creating the Digital Enterprise

What Is Industrial Revolution 4.0?

End of 18th century

Industry 1.0
Steam engine manufacturing

Beginning of 20th century

Industry 2.0
Mass production and assembly lines

1970's

Industry 3.0
Automation and robotic

2015+

Industry 4.0

Digitization and Integration of Value Chains and Products/ Services (Internet of Things/Services)

New Digital Business models

Integrated Data Analytics as core capability

Digital Enterprise

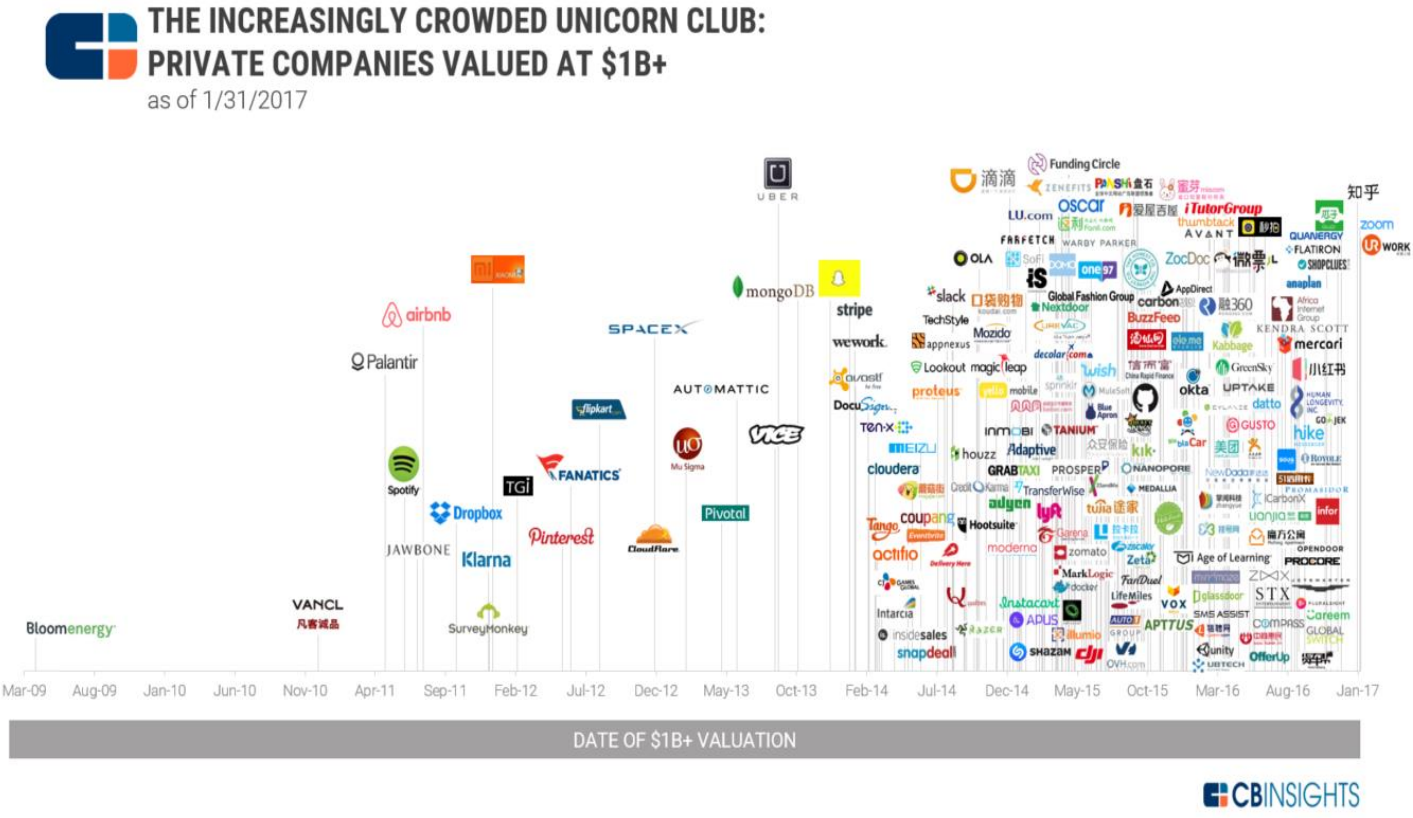
Flexibility and complexity

1800 1900 2000 2014 2020

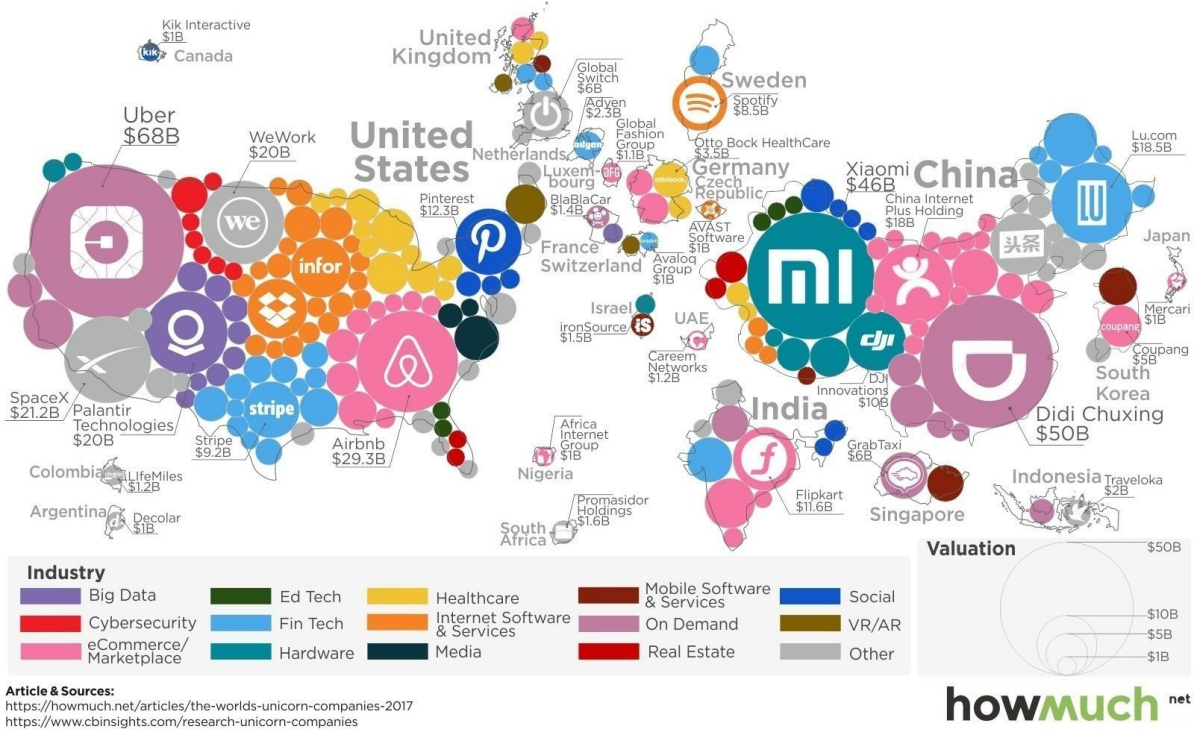
Digital agriculture will not only change how farmers farm but will fundamentally transform every part of the agri-business value chain

Everything is accelerating

Choosing to go faster by slowing down & gaining perspective



Where are Africa's Unicorns?



Article & Sources:
https://howmuch.net/articles/the-worlds-unicorn-companies-2017
https://www.cbinsights.com/research-unicorn-companies

howmuch.net

“

We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don't let yourself be lulled into inaction.

Bill Gates

Disruptive Technologies

- As Cloud, AI, Automation, IoT, Censors & Blockchain become pervasive, their combined impact will reshape standard business architectures
- The "Outside in" Digital Transformation of the last decade is giving way to the "Inside out" potential of data exploited with these exponential technologies
- The top-down approach comes from organisations with the most structure, greater funding and clearer strategy. By contrast, those with a bottom-up approach have a more diverse or experimental application of AI, and solutions that are more integrated into actual processes
- Tackling the difficult task of shifting Applications & Infrastructure from Legacy to New
- Biggest barriers to progress are one's own People & Culture

“

The big moment for an organization is when they have embraced the fact that digital transformation isn’t a technical issue, but a cultural change. And, culture change is a prerequisite of digital transformation

Ian Rogers, Chief Digital Officer, LVMH
World Leader of high quality products

Digital transformation: the future is human

Digital is not disrupting … *Humans are.*

Digital is not innovating … *Humans are.*

The best digital strategy is a … *Human one.*

Unleashing Human Power – Video

https://www.youtube.com/watch?v=lPYkNV94kUE&feature=youtu.be

Key questions as you develop your digital transformation strategy

Digital strategy must align to the organizational value proposition, "the why" behind the organization's existence.

01
How will you choose to play as industry lines blur, new market opportunities emerge and new competitors arise?

02
How will you play to win as disruption plays out in the near, medium and long term?

03
How will your digital transformation program add new value for your customers?

04
How will your digital transformation program create new supply chains?

05
How much are you willing to invest, what is your target ROI, and how will you measure it?

06
Are you doing enough to define what business you'll be in tomorrow?

07
And are you investing in innovation and design thinking to shape that future?

08
What impact will digital transformation have on your people agenda?

Which leads us to 6 foundational principles about working on culture

1. Culture is a key enabler of your purpose and strategy.
2. Behavioral risk, ethical issues and regulatory requirements have elevated the seriousness with which culture is being treated.
3. Board and executives play a key role in owning, directing and monitoring culture.
4. Every organization has a culture archetype and wins through the right behaviors.
5. Culture can be reliably measured so as to intentionally evolve it over time.
6. Evolving culture is about changing a few everyday behaviors and reinforcing the changes through shifts to the company operating model and operating environment.

Future of Work

Sharing economy platforms → **The gig economy**

- Nonemployee freelance workers
- Temporary assignments

40% of US workers independent contractors by 2020[1]

Artificial intelligence and robotics → **The machine economy**

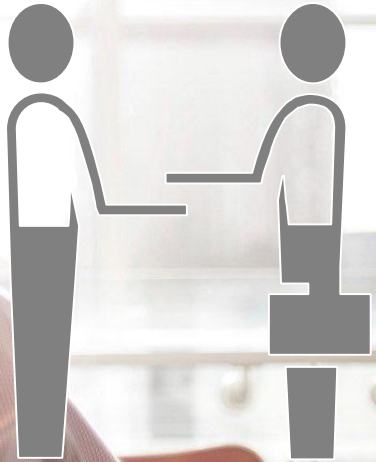
- Massive labor disruption
- Human labor displaced and supplemented
- Jobs unbundled into tasks

White collar and creative work not immune

5.1 million net job loss by 2020[2]

Disrupting Business

Disrupting Government

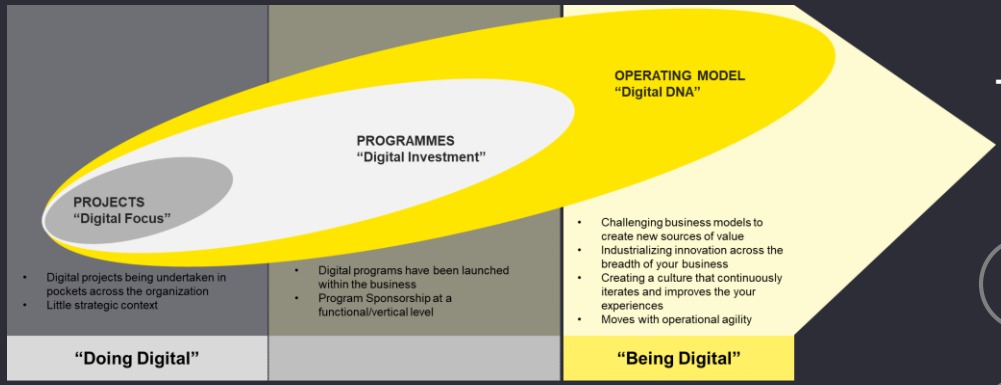


Disrupting Society

EY Approach – Assessment: External & Internal -> Transform (DET)

Digital Enabled Transformation

"BEING" DIGITAL VS. "DOING" DIGITAL



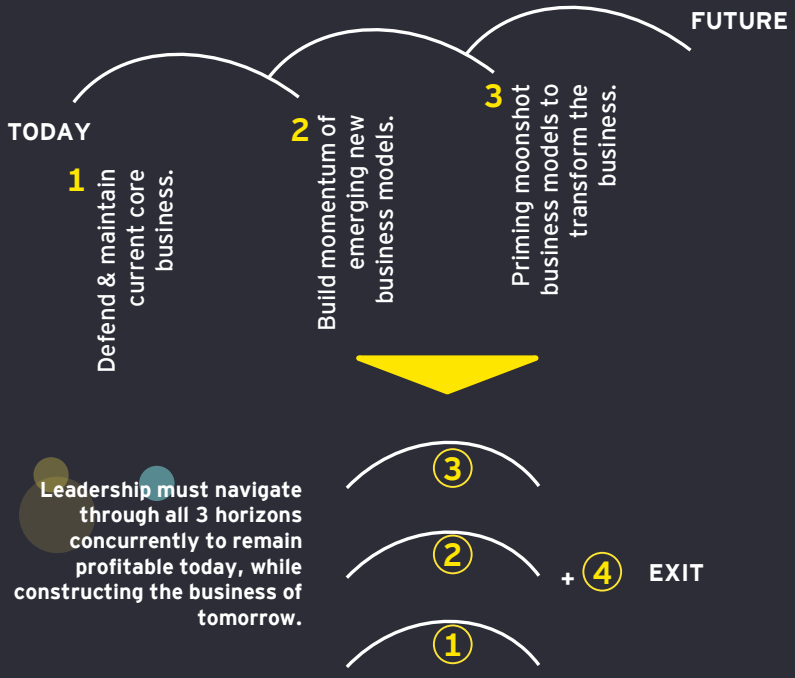
MATURITY

LEVEL 1 Automation → **LEVEL 2** Extended capabilities → **LEVEL 3** Synchronise capabilities → **LEVEL 4** Transformation (BM, OM, CM)

HOW DO WE THEN TRANSCEND FROM DOING DIGITAL TO BEING DIGITAL?

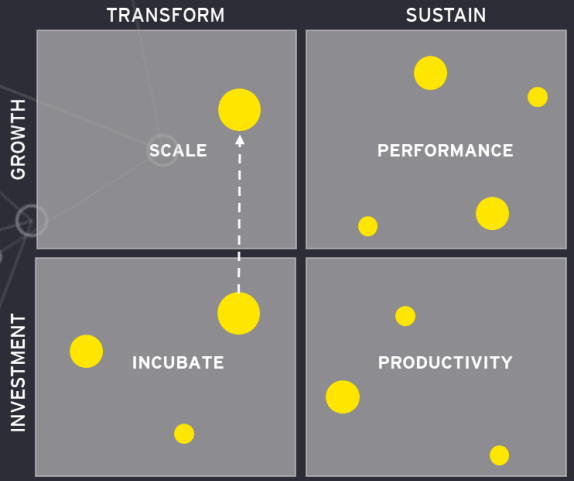
1. Focused navigation
2. Clear prioritisation
3. Two-speed business
4. Digital leadership

1 Focused navigation

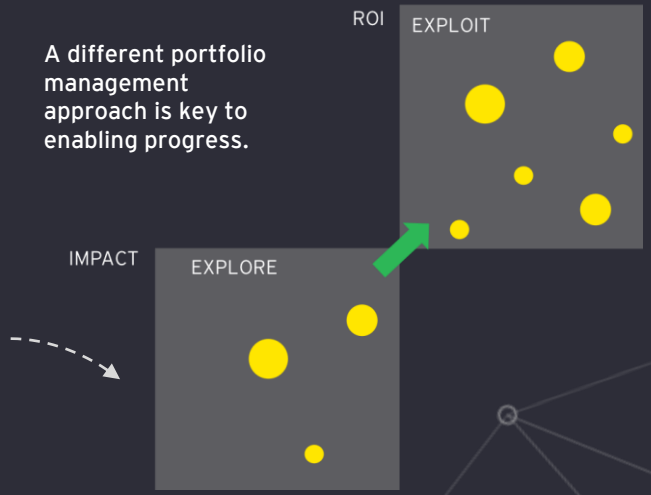


Leadership must navigate through all 3 horizons concurrently to remain profitable today, while constructing the business of tomorrow.

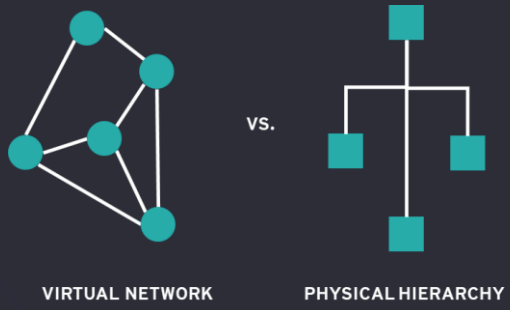
2 Clear prioritisation



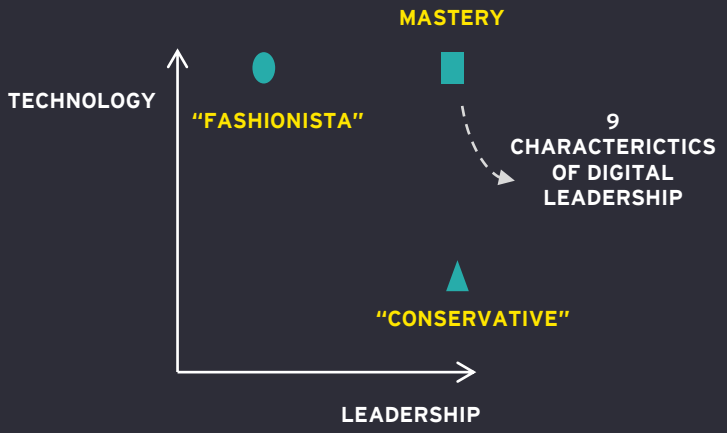
A different portfolio management approach is key to enabling progress.



3 Two-speed business



4 Digital leadership



Digital Enabled Transformation

9 CHARACTERISTICS OF DIGITAL LEADERSHIP

1 **Leadership**

Build a different leadership profile. Leaders invite diverse skill sets to the design table.

2 **Vision & purpose**

Leaders tend to have an overall vision and purpose that transcends everything they do creating paradigm shift.

3 **Experience**

Leaders translate their vision into experiences and have a ruthless focus on delivering outcomes.

4 **Agile innovation**

Leaders place a premium on agile innovation and take an iterative, portfolio approach to delivery, accepting failures as successes.

5 **Customer Centric**

Establish responsive customer networks that can quickly provide a diversity of feedback. Relentless focus on customers.

6 **Ecosystems & Communities**

Build your ecosystem, find the right partners. Co-create with customers & suppliers. Share.

7 **Legacy**

Leaders either leverage or transform legacy — turning it into a advantage.

8 **Learn from the industries that went first**

Become an expert horizon watcher & sense maker.

9 **Data is the engine, trust is the lubricant**

Leaders recognise the value of data to sense, predict, respond and empower real time decisions.

“

Today is a time when the four walls of industry have been blown open. The only no-go area is your comfort zone.

Standing still means being left out. At EY, we are working with our clients and advancing our own thinking and ways of working – as we continue to be builders of next-generation value engines for our clients

“

Doubt is an uncomfortable condition, but certainty is a ridiculous one

Voltaire,
French philosopher & writer of the Enlightenment era


“
You can’t control the waves, but you can learn to surf!”
Jon Kabat-Zinn