Integrating the Food System


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Big Data?

• Big Data is not new
• 80% of Big Data is mind-numbingly boring
• What is new?
  – We can connect things that couldn’t previously be connected
  – We can optimise whole systems
  – We can avoid unintended consequences
Why Connecting is Important
Why Now?

- The ability to quantitate has never been greater

- The agri-food sector has just become aware of the potential opportunities

- The benefits of ‘big data’ and quantitative analytics have been largely untapped
Data on its Own Has No Value

- Patterns do not imply causation
- Theory is critical
- Modelling and analytics are essential to create value
- Creating solutions beyond imagination
The UK Agritech Strategy

• £180M of new funding
  – Create new Centres of Excellence made up of the best in the UK
  – Support industry collaboration with this R&D base

• First Centre of Excellence was in Data Science, Modelling and Metrics of Sustainability
  – ‘Agrimetrics’
  – Industry-led
The Agrimetrics Data Science Ecosystem

VALUE-ADD TO DATA IS IN INTEGRATION AND MODELLING

DATA INTEGRATION, MODELLING AND ANALYSIS PLATFORM

PRECOMPETITIVE DATA

PUBLICALLY AVAILABLE DATA
The Agrimetrics Data Science Ecosystem

DATA INTEGRATION, MODELLING AND ANALYSIS PLATFORM

PRECOMPETATIVE DATA

PUBLICALLY AVAILABLE DATA

COMPANY A

THINK TANK

CPD
The Agrimetrics Data Science Ecosystem

- **COMPANY A**
- **COMPANY B (SME)**
- **COMPANY C**
- **COMPANY D**

Sharing ‘open’ and ‘closed’ data

- **CPD**
- **THINK TANK**
- **DATA INTEGRATION, MODELLING AND ANALYSIS PLATFORM**
- **PRECOMPETATIVE DATA**
- **PUBLICALLY AVAILABLE DATA**
The Agrimetrics Data Science Ecosystem

- Data, sensors, engineering, satellite imagery, IoT, etc.

COMPANY A

COMPANY B

COMPANY C

COMPANY D

Data Science Ecosystem
The Need

Co-created in partnership with over 200 major companies, SMEs, NGOs

- Integrate across the global food chain
- Priorities
  - Raising awareness
  - Sustainability
  - Improved efficiency and productivity
  - “Honest broker”
- Opportunities
  - 16 areas of opportunity
  - 5 themes

Syngenta, Microsoft, Unilever, Pepsico, WalMart, Sainsbury’s, Monsanto, Bayer + 60 SMEs
Initial Themes and Exemplar Opportunities

1. Real time risk management
   – Within season pest/disease risk monitoring and forecasting, tailored to individual farms and fields

2. Horizon scanning
   – Smart land use for food security and price risk management

3. Product traceability, quality and food safety
   – Campylobacter monitoring and prevention system

4. Sustainability metrics
   – Reducing food waste through improved matching of supply and demand

5. Integrating complex spatio-temporal data
   – Large-scale field phenotyping
Barriers?

• No-one ‘owns’ the food chain?
  – How do we optimise the food chain?
• Insufficient incentives to innovate
• Lack of awareness and leadership in industry
  – ‘Fear’ of embracing complexity
• Reluctance to share data
  – Co-creating a data platform with farmers
• Lack of flexible and simple IP models