Big Expectations from Big Data

Reflections from interacting with stakeholders across the European agrifood value chain

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Ready, Tech, Grow: Agrifood and Emerging Technologies
Mega Trends Driving Agrifood Transformation

CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE GROWTH

New consumer preferences
Rising consumer demand for personalized, on-demand products and increasing awareness for product traceability throughout the supply chain

Emerging technologies
Big inefficiencies suggest finding big opportunities in emerging technologies. On average, 35% of the initial production is lost or wasted at different stages

Changing value chain configurations
Growing trend towards horizontal and/or vertical consolidation across the ecosystem, with new data technologies being a powerful driver
Precision Ag: The Big Data Landscape

WHAT’S READY? WHAT’S NEXT?

Innovation Trigger  
Peak of Inflated Expectations  
Trough of Disillusionment  
Slope of Enlightenment  
Plateau of Productivity
Information Asymmetry and a Crisis of Trust

The place of blockchain in the supply chain

Building Provenance

REAL-TIME, TRUSTWORTHY DATA, FROM SUPPLIER TO SHELF

Linking Provenance’s blockchain-backed technology with Soil Association Certification’s databases, a product’s journey enters the blockchain in real time. Shoppers can see information on their chosen organic product in real time, including the certification’s validity, the organic criteria met by a product, a map of its journey, and photographs from the farm.

How can I trust that verified data if I am two steps down in the supply chain?

- Provenance.org

OriginTrail: Going beyond Agrifood

• PRODUCT AUTHENTICATION & BRAND PROTECTION

The OriginTrail Decentralized Network is applicable to any product supply chain;

• UNIVERSAL ACCESSIBILITY

A wide set of business applications, from supply chain optimization, fraud detection/prevention,

• ENSURING ACCOUNTABILITY AND PRODUCT JOURNEY

Ensures transparency, security and trust in products and certificates.
Turning Data into Decisions: How to Manage Uncertainty and Rising End-user Expectations
When it comes to AgTech, farmers have an information arbitrage advantage... they can play around with different technologies and can quickly separate the wheat from the chaff.”

— Rob Leclerc, chief executive of AgFunder
**THE PROMISE**

- Plant optimization
- Pest and disease identification
- Creating top-yielding hybrids

**THE QUESTIONS**

- Who can access my data?
- Did I get a fair deal?
- Is the data safely stored?
The Data-Hungry AgTech World

- Soothing farmers’ concerns about data misuse while at the same time enabling data collection across the entire value chain;
- Ensuring seamless interoperability between applications and/or agri-services in building a robust Food and AgTech ecosystem;
- Creating a framework that simplifies decision making in a wide range of business applications;

Investors see promise in agricultural technology that goes beyond data. Venture-capital investments in the agricultural sector overall rose to $560 million last year from $201 million in 2015.
Data buyers and farmers enter into relationships wherein both can participate in value creation. Revenue is evenly split with farmers.

**DATA AS A SERVICE**
An ag data collection and software service, Farmobile empowers farmers with complete year-over-year data gathered in real-time and data ownership.

**FROM DATA TO PRODUCT**
Farmers decide whether to approve offers. Data buyers such as dealers, agronomists, crop insurance agents only pay for the information they desire.

**ROI GUARANTEE**
Data buyers and farmers enter into relationships wherein both can participate in value creation. Revenue is evenly split with farmers.
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**EQUITABLE TERMS**
Farmers decide whether to approve offers. Data buyers such as dealers, agronomists, crop insurance agents only pay for the information they desire.

**BOTTOM LINE OWNERSHIP**
Farmobile offers farmers legal agreements that govern the ownership and control of their agronomic data.

**THE RISK VS. REWARD**
Buyers get a direct link for data collection with baseline customers, utilizing unique field data to create value and growth for their own clients (e.g. AgI).
End-user Engagement: Delugged with Data, Hungry for Insights
Connecting the Dots: Toward an AgTech Ecosystem

**Living Labs: Harnessing Smart Interactions**

**COOPERATION IS KEY**
An open innovation environment between ICT & agricultural industries

**DEFY STEREOTYPES**
Broken stereotypes between technology developers & end-users

**CO-CREATION AT THE TOP**
Co-creation and validation of ICT solutions for agriculture in real-life setting

**The Innovation Funnel: From Idea to Market**

- **IDEA**
- **MARKET ACCEPTANCE**
- **FUNDING**
- **SUPPORTING SERVICES**

**Applying Lean Principles in a Multi-Actor Context**

- **TECHNOLOGY CHAIR**
  - IMPROVEMENTS
  - Finetuning
- **ECOSYSTEM CHAIR**
  - END-USER FEEDBACK
  - Involvement & Co-Creation
- **BUSINESS CHAIR**
  - KPIs EVALUATION
  - Measurement & Monitoring

**CO-OPÉRATION EST CLÉ**
Un environnement d’innovation ouvert entre les industries ICT & agricoles

**DEFIE LES STéréotypés**
Les stéréotypes brisés entre les développeurs de technologie et les utilisateurs finaux

**CO-CRÉATION À LA TÊTE**
Co-création et validation des solutions ICT pour l’agriculture dans un cadre de vie réel
Feeding the Big Data Supply Chain

Syngenta: Open Innovation & Crowdsourcing Platform

Improving analytics capabilities through crowdsourcing
Using the knowledge and expertise of bright individuals outside the organization to accelerate internal innovation;

Harnessing the power of ecosystem-based innovation
Tapping into diversity directly through online open innovation platforms for idea generation and solving complex business problems;

Using the crowd as an innovation partner
Getting people to work on clearly identified challenges, collaborate and submit solutions through open innovation platforms;

Open innovation in agriculture as a challenge
The 2017 Syngenta Crop Challenge addressed the need to feed a growing world population with decreasing agricultural land;
The Big Question: Is Deep Learning Ripe for Evaluation?

The commodity measured in bytes, not bushels

The potential for deep learning in agriculture

• Handle uncertainty, offer context- and location-based decision support;

Agriculture is one of the most uncontained environments to manage

• More rapid adoption for development of new seeds, fertilizers, or crop protection products than for in-field precision agriculture applications
• Automatized condition monitoring in automated / programmable greenhouses

Open questions

• Feeding the algorithm with data and training it;
• Addressing large gaps in data collection, preparation & benchmarking capabilities;
• Scaling to a real world farm through open infrastructures, open innovation models & collaborative spaces;

The issue: Models need better traction with farmers

Crop models have been driven by the integration of new research rather than by real-life practical problems and requirements of end-users.
Tradition and AgTech: Finding the Right Balance

INCLUSIVE

SUSTAINABLE

CIRCULAR

And who can pick winning AgTech better than the people who matter most: farmers? Fostering farmer-driven, market propelled innovation, fueled by collaboration and experimentation in open real environments must be an integral part of creating sustainable AgTech products and services.
Thank you!

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