Dublin — June 20-23, 2022

Marketplace for agri-data Prototype and user feedback

**Kieran SULLIVAN (Walton Institute)** 

AgriDISCRETE project

**GLOBAL VISION:** 

**IoT TODAY AND BEYOND** 



### Where this work comes from



- AgriDISCRETE project
- Two years (2020-22)
- Funded by Irish Department of Agriculture, Food, and the Marine (DAFM)
- Coordinated by Walton Institute

Explore challenges for data use through increasing digitalisation of agriculture

### Where this work comes from



# ICT and data science



AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

Social science and rural development



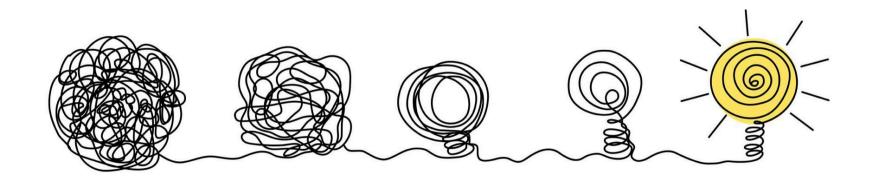
Business modelling and markets

### What you will see



Process...

#### ...more important than any technology or software





Technology and data are easy.

People and relationships are hard!

### ...so we started with frogs

200



If it's your job to eat a frog, it's best to do it first thing in the morning. And If it's your job to eat two frogs, it's best to eat the biggest one first.

AZQUOTES

Mark Twain -

## **Basic approach**



Requirements gathered via

\* partner expertise
\* desk-based research
\* multi-actor workshops

- farmers
- tech companies
- food processors
- policy officials
- etc.

\* Social sciences – e.g. level playing field for farmer when dealing with multinational companies, trust between actors, etc.

\* Business modelling – e.g. enable nonacademic/commercial aspects, multisided marketplaces, etc.

...codified into models first, and then later into software building blocks (ICT and data science)

### **People (data actors)**



#### **Data Providers**

\* Data owners, generators, producers
\* Offer data to consumers
\* Require transparency on how, when, and by whom their data is accessed

#### **Data Consumers**

DEMAND

- \* Need to be able to search for relevant data
- \* Need facility to negotiate terms for data access

### **People (data actors)**



Data Aggregators

\* Combine data from different providers and offer to consumers \* Can act as both data consumers and as data providers



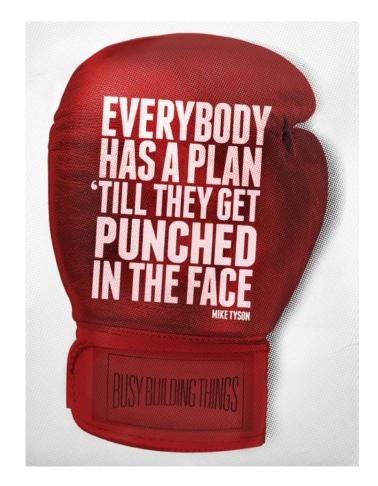
### What did the software need to do?



Theory: build in all requirements from social science and business point-of-view, taking best practice and examples from existing (nonexistent?) systems

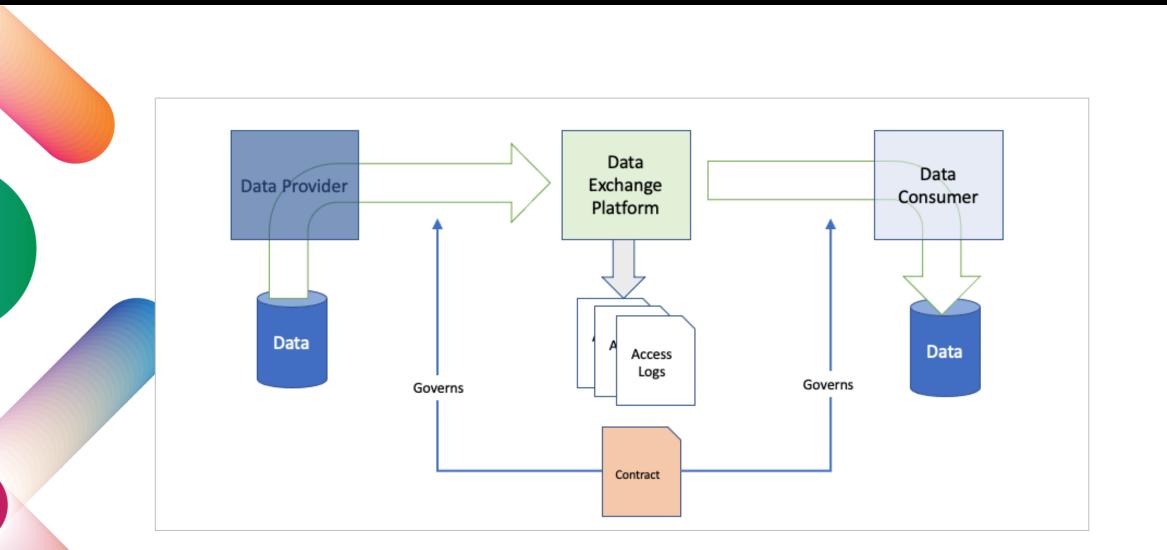
Reality: compromise, build something and get it in front of users

Python, MySQL, ... ...no graphic design or JavaScript yet



### First model and wireframe





### **First model and wireframe**



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● ● ← C	AgriDISCRETE	* E
Data Exchange	Home	
lilltopFarm@agridiscrete	Data Sources	Offers
Home	You have 2 active data sources	You have 2 pending offers for data access
Data Sources		
S Contracts	Contracts You have 4 active contracts	Payments You have 26 payments made (or pending)
? Offers		
Payments	Revenue	
	You have a total revenue of €4,128.98	
Sevenue Revenue		
Access Logs		
Western Research	Insti	
Herd Monitor Ltd		

#### ovider home screen

### First model and wireframe



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●●● ← C	AgriDISCRETE	*
Data Exchange	Q, lame	×
BovineAnalysis@agridiscrete.c	COM Animal Lameness Records This data provides lameness records for animals that have had instances of lamene Lameness Start Data, Locomotion Score, Actions taken, Lameness Complete Date.	ess. Data includes
් Home	Number of Records: <b>709</b>	Format: Vendor Based
Q Find Data	Lameness Records	
? Offers	Lameness records for animals that have had instances of lameness. Data includes I Locomotion Score, Actions taken, Lameness Complete Date.	Lameness Start Data,
Secontracts		
✓ Value Exchanges	Number of Records: 453	Format: NGSI-v2
✓ <sup>¬</sup> Expenditure	Dairy Herd Lameness Records This data provides lameness records for animals that have had instances of lamene Lameness Start Data, Locomotion Score, Actions taken, Lameness Complete Date.	ess. Data includes
Access Logs	Number of Records: <b>709</b>	Format: <b>NGSI-v2</b>
📃 Apple Tree Farm		
	MAKE OFFER	

#### **Consumer search results**



#### Enter basic details (meta data)

Name (build relationship with system and consumers)

Sector – drop-down menu e.g. dairy, beef, crops, fruits, etc.

Keywords – free text e.g. lameness, diet, animal health, grass, anthelmintic, wormer, winter feed plan, etc.

Data sample size e.g. 10 rows of spreadsheet file



#### Enter basic details (meta data)

Name (build relationship with system and providers)

'Find data' – free text search

View sample

Contact provider

### **User trials and feedback**



### **Repository:**

Can the provider's full data set be uploaded to the platform, rather than just a sample? This would help the provider track the data they have shared and would offer them a back-up option for data that might currently be stored locally on a laptop.

#### **Data accuracy/integrity:**

Is it within the scope of the platform to provide assurances to consumers that the data they are buying is accurate and of sufficient integrity?



#### **Monetary exchange:**

Farmers who used the platform suggested that a monetary exchange would be the most preferable form of value exchange.

They said it is not so much about the money, which they assumed would be relatively small, but more about keeping the exchange as simple as possible.

This would avoid the need for new discussions on what constitutes value (free services?) whenever a new datafor-value exchange is being negotiated. It would also allow both providers and consumers to compare the value being placed on different data sets.

### **User trials and feedback**

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### **Other issues:**

Instructions Contracts App for phone etc.



### Conclusion



Start by eating the biggest frog: people and their relationships

...build the technology later

Goods and services have been traded in agriculture for hundreds of years... data will be no different



### **Next steps**



Horizon-Europe: DIVINE

Kick-off: 1-Oct-2022

Coordinated by: ICCS



"Demonstrating the value of data sharing to boost the agri-data economy"



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## Thank you!

Find more: www.waltoninstitute.ie

iotweek.org