

Smart Farming

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Open vs Closed Source





IoT Network Management



Farm Data Processing



Cultivation Management



Currently, our goal is to find our first customer.

Beyond this, our goal is to to see our software
implemented across the UK.

To reach these goals, we have some exciting news to
share...

... At the end of our presentation.



Reduce waste

Use land previously unsuitable for growing, reduce resource use, wastage, **reduce food miles**

Increase profits

Maximise yield per unit area, making smart farming more **economically viable**

£ / tonne / m²

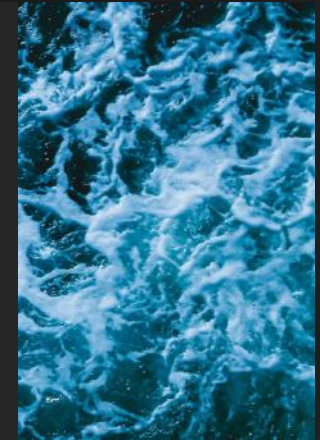


Encourage youth

Reduce the average age of farmers in the industry which will **drive innovation** and benefit the sector

Water

Reduce high water usage from traditional farming in water-scarce areas up to **95%**



Primary Research

"Agnostic systems and open protocols are the way forward."

- Tony Gale

- | | |
|-----------------------------|--|
| 1. Tony Gale | PhytoPonics & DBfW - Board Director |
| 2. Kevin Morgan | NatWest - Regional Director |
| 3. Victor Lambert | Hortimax Group - Ex. Managing Director |
| 4. Chris Nelson | GrowStack - Director |
| 5. Sarah James | Royal Welsh Agriculture Society - MD |
| 6. David Summerfield | Bridge Greenhouse - Project Manager |
| 7. Peter Lane | Vertical Farming Network - Chairman |
| 8. Rebecca Yee | Urban Farmer |
| 9. Eric Roth | Agriitecture - Developer / Consultant |
| 10. Dan Siego | Vertical Farm Developer |

Problems in the Industry

High fragmentation

Hardware/software almost always unique to each farm/device, very little cross-compatibility between companies



Low innovation

Re-inventing the wheel means the same problems are solved over and over



High Capital Expenditure

Large team of developers required to get system up and running

>£100k setup costs



Vendor lock-in

No option to use 3rd-party hardware unless support directly added by developers



Value Proposition

Decrease CapEx when building a smart farm

Provide an all-in-one solution for cultivation & device management

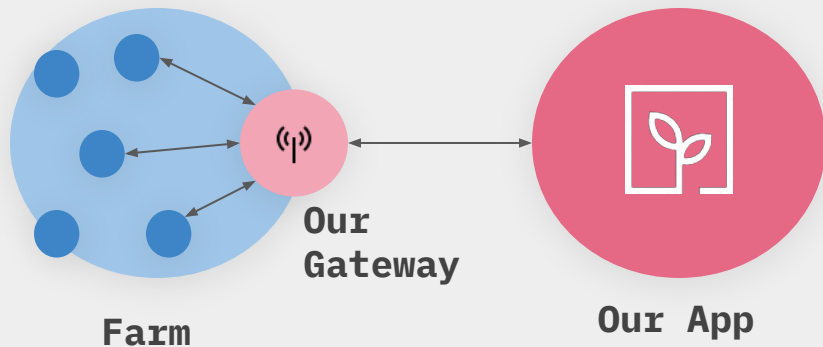
Remove vendor lock-in & open the doors to younger farmers

IoT Cultivation Management System

Communicate over any protocol,
with any data format

Using our **IoT Gateway**

Provides local redundancy



Farm Management



Oversee entire operation, harvest scheduling, projected earnings, stock count, reporting, weather coordination...

Any device, any protocol



Define data input & output, no software developer required

Web interface



View data & control from around the globe

Machine Learning



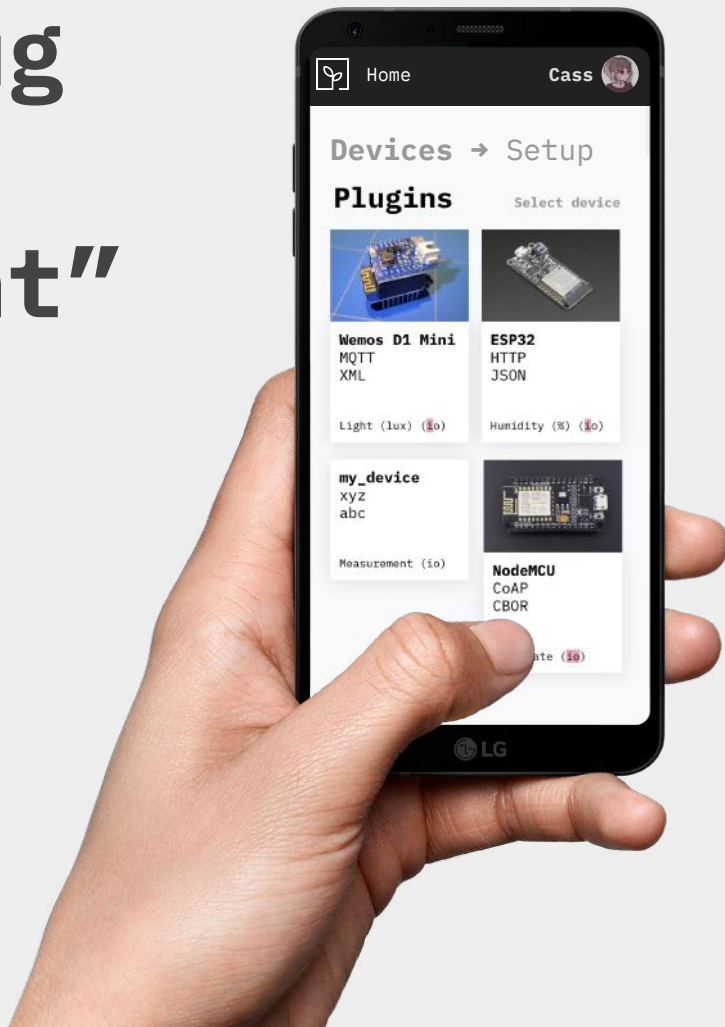
Optimise plant growth recipes
Maximise yields ↑ minimise resources ↓

Alerts

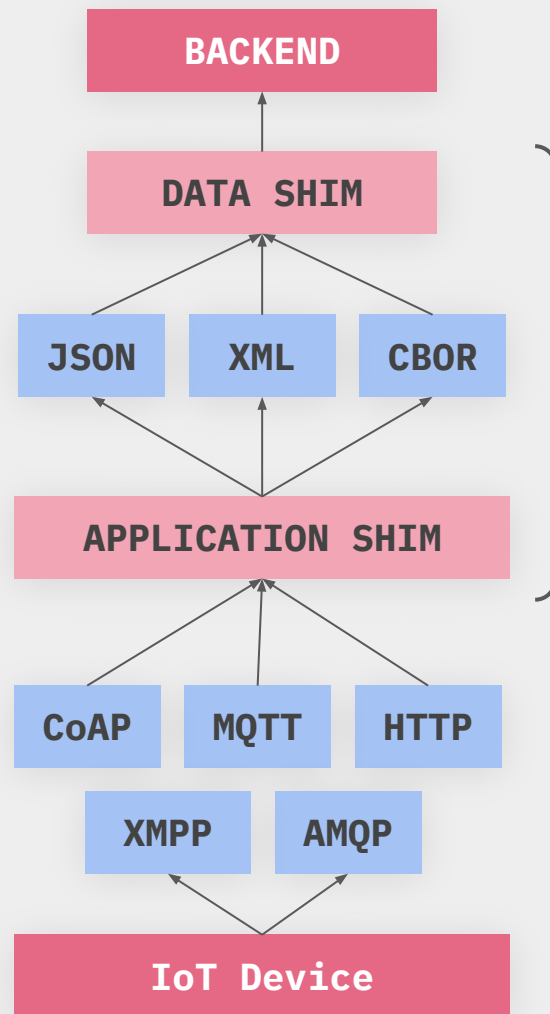


Be aware of anomalies, send notifications via SMS or email, fix faults fast

"Plug and Plant"



IoT Gateway



Case Study

Mid-size 1000m² indoor farm

CapEx costs from initial development
Reduce from 10 → 5 developers

£2,500 * 5 * 3 months = £37,500

Operations,

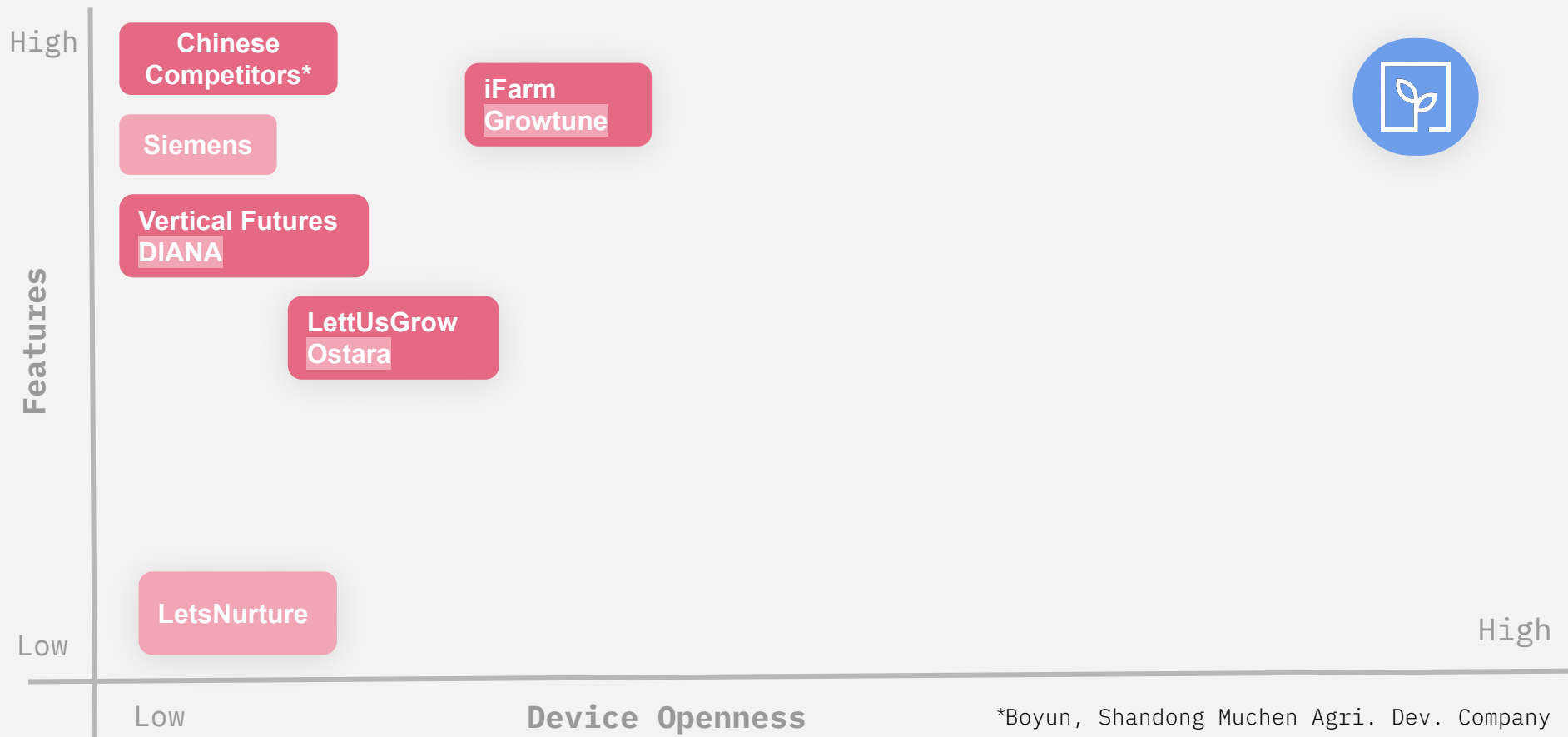
Labour	→ -20% work
Oversight	→ -5% losses
ML optimisation	→ +5% yield

Open-ended software system allows the
use of cheaper, 3rd party hardware -
lowers costs further

Gross revenue increase of 30%

Labour accounts for 56% of an
indoors farms operational costs

Competitor map



*Boyun, Shandong Muchen Agri. Dev. Company

Feature Comparison

Feature	LetsNurture	Ostara	DIANA	Growtune	
Farm management	Yes	Yes	Yes	Yes	Yes
Dashboard	Yes	Yes	Yes	Yes	Yes
Machine Learning	No	No	No	Yes	Yes
Alerts	Yes	Yes	No	Yes	Yes
Custom recipes	Yes	No	No	Yes	Yes
Order management	Yes	No	No	Yes	Yes
Event routines	Yes	No	No	No	Yes
Measurements	4	4	?	7	>15
3rd Party Hardware	No	No	No	No	Yes

Market

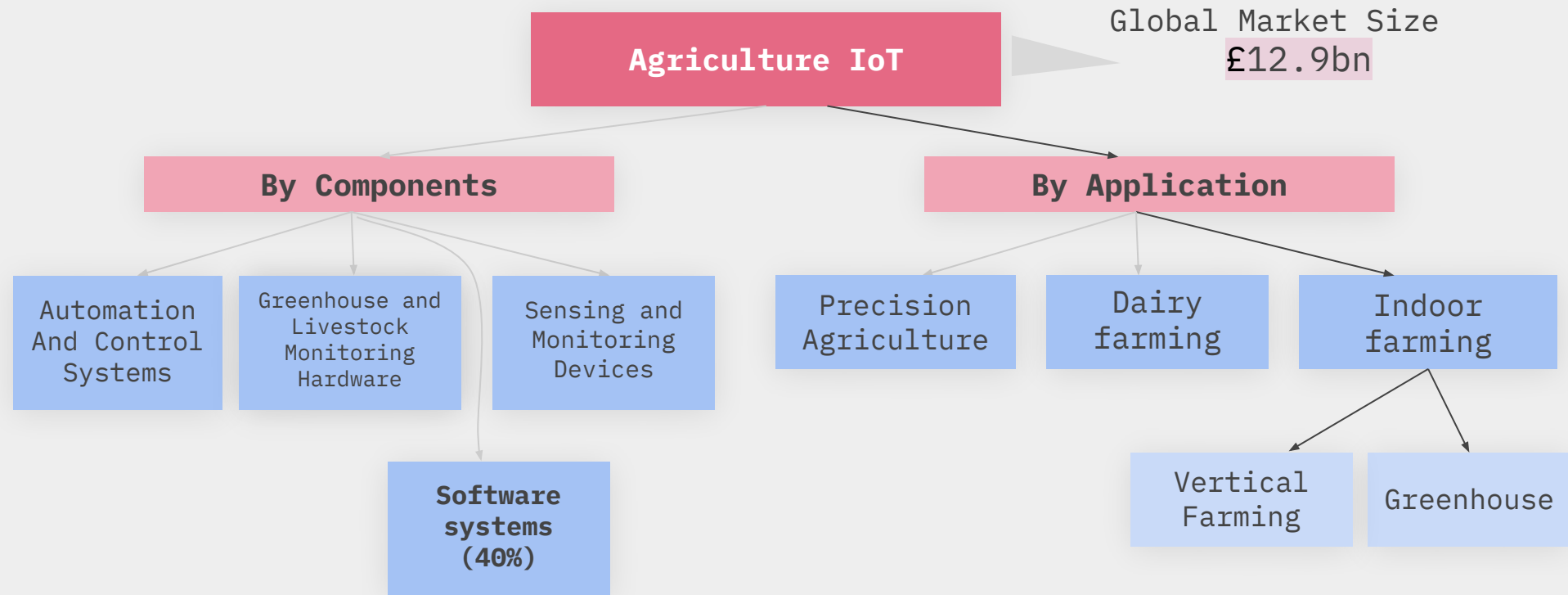
Global Agriculture IoT

2019: £12.9bn

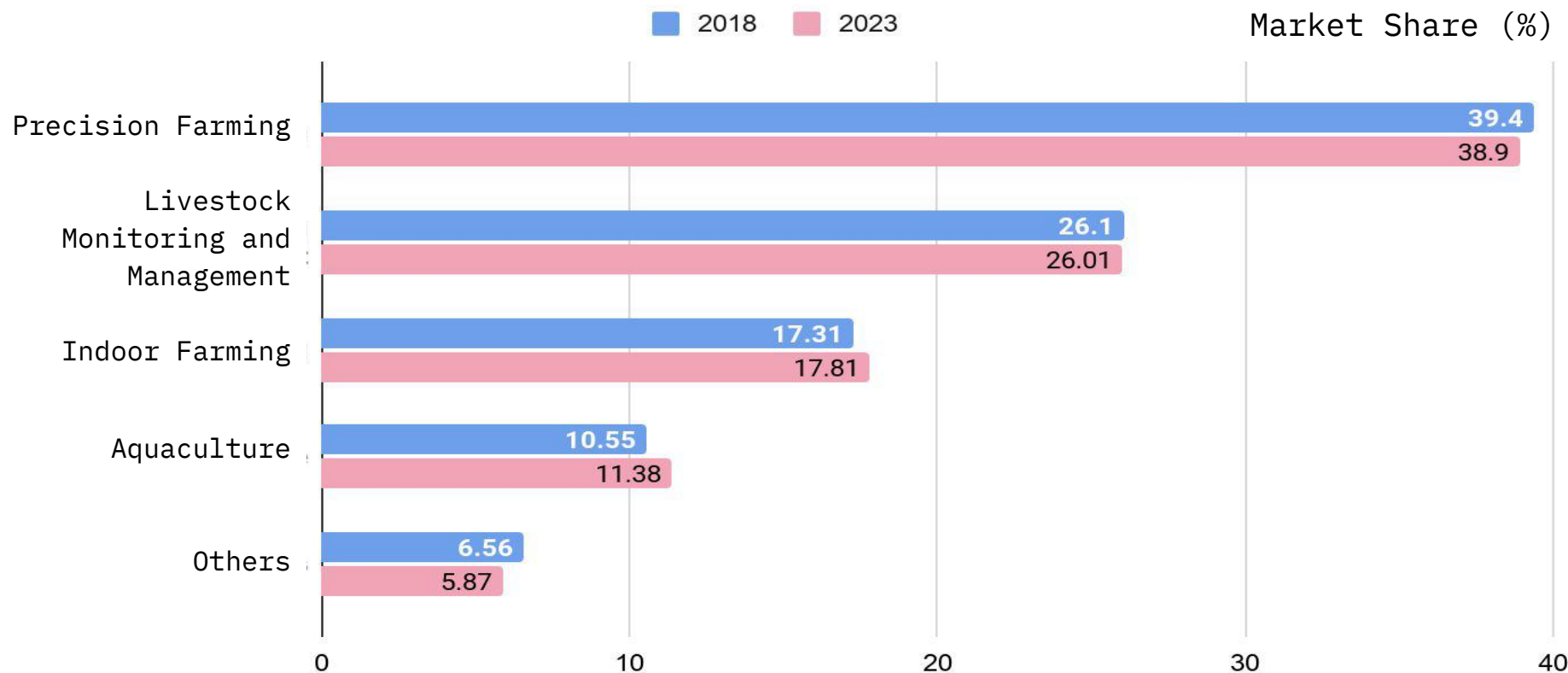
2025: £28.7bn

CAGR of 15.6% from 2019 to 2025

Lay of the land



Agricultural IoT Market Share by Application



Addressable Market Size

Vertical Farms



Glasshouse Farms

UK market = 30-35% of European
IoT agriculture Market

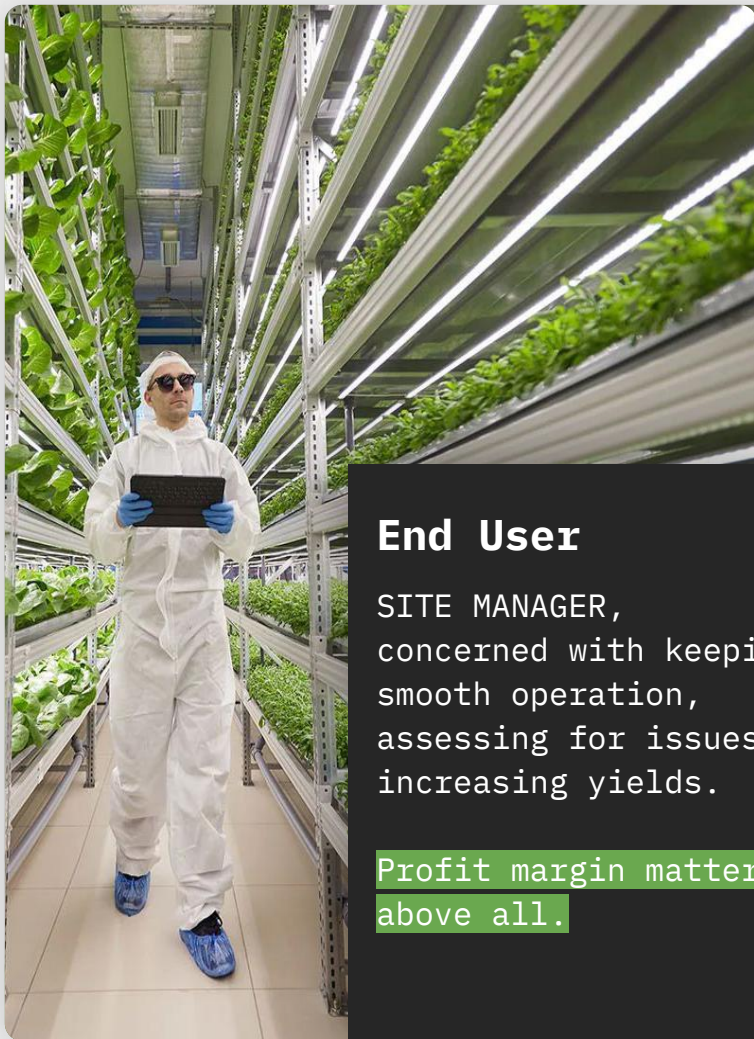
= £2.4bn * 32%
= £775.2 mln



Software = 40% of IoT agriculture
= £311.6 mln

Indoor farming = 17.3% of software
IoT agriculture

≡ £49-54 mln



End User

SITE MANAGER,
concerned with keeping a
smooth operation,
assessing for issues and
increasing yields.

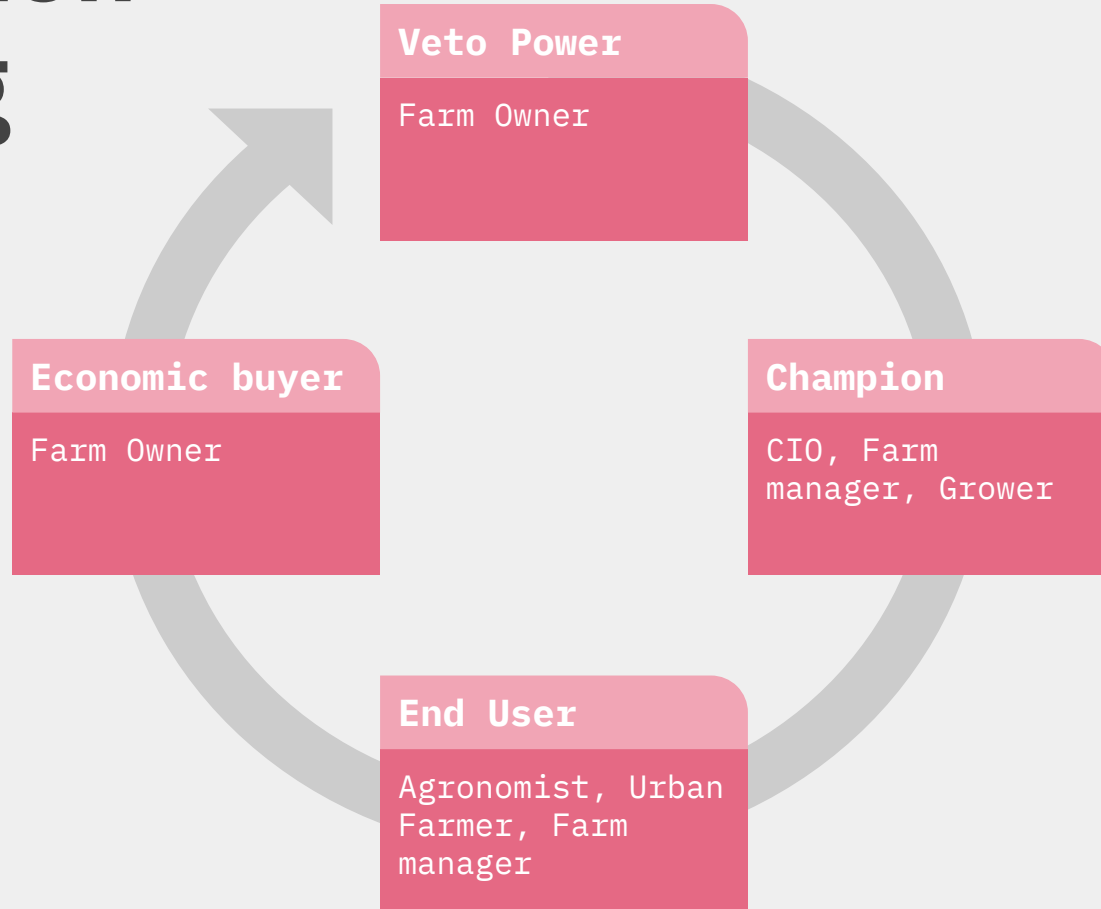
Profit margin matters
above all.



Persona

DERMOT O'REGAN,
10-year professional
background in
environmental policy and
management before
establishing Grow Bristol
in 2014.

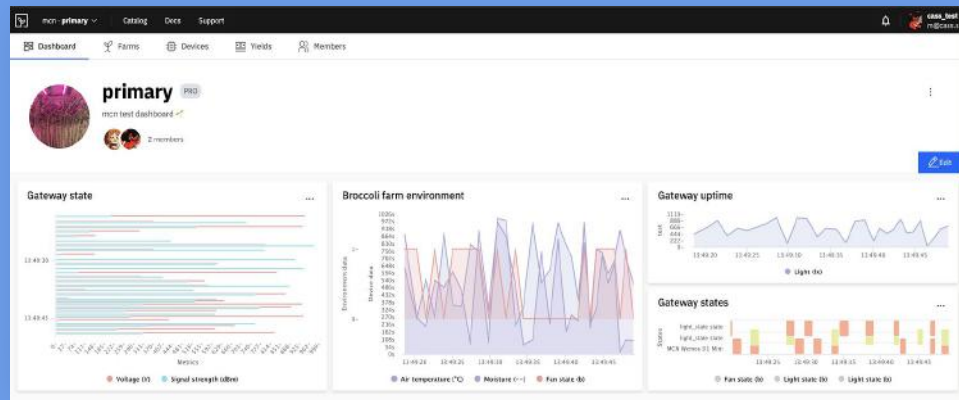
Decision Making Unit



Minimum Viable Product

Orchestrate, Monitor & Predict

- Cultivation Management
- Manage IoT devices, **send & receive** commands
- “Plug-and-Plant”
- Event queues to perform daily routines



Use Case

What is a farm's catalyst to action?

- When setting up their farm
- They're looking to simplify their IoT management / have more control
- They're looking to integrate unsupported hardware into their farm

Use Case

How do farms acquire our software?

- Sign up & have a subscription to our web service
- They ***must*** have an IoT Gateway (IoTG) enabled machine locally in the farm
- For their IoTG, they can either:
 - Purchase an IoTG from us
 - Relay their current IoTG's data to our service

Use Case

How do farms set up our software?

- On their computer, they access our web service
- They use a 'plugin catalog' to find their device types, and link them to our service
- They process & manipulate their IoT devices & data

Use Case

How do farms get value
from our software?

- Simplification of Cultivation Management
- Freedom from **vendor lock**, Ability to use / add any hardware
- Precise control and oversight of operation
- Increase profits through automation & optimisation

Business Model

Monthly/Annual subscription

+ data throughput + optional modules

iFarm Growtune, Vertical Futures DIANA

Optional One-time-fee

Gateway cost & setup fee if unable to forward data

Siemens



Subscription

Base fee for access to the service

£20_{pm}

Hobby

+ data

- 20 devices
- IoT *Plugin Store* with robust support for **all IoT Devices**
- Device Management
- Access to growth recipes collection
- Free updates
- Online support

£250_{pm}

Smart

+ data

- 2,000 devices
- **ML optimised** plant growth recipes
- Data export & reporting
- Order Management
- Production Monitoring
- Rapid support

£500_{pm}

Pro

+ data

- **Unlimited** devices
- All modules included

Higher tiers include all features included on lower tiers. Optional modules not included.

Data throughput fees

Larger farm → More devices → More data

Number of Devices

IoT devices per unit area in a farm

Number of Requests

Requests per device

Type of Request

Ingress or Egress

Request Size

Message body (e.g. image / text)

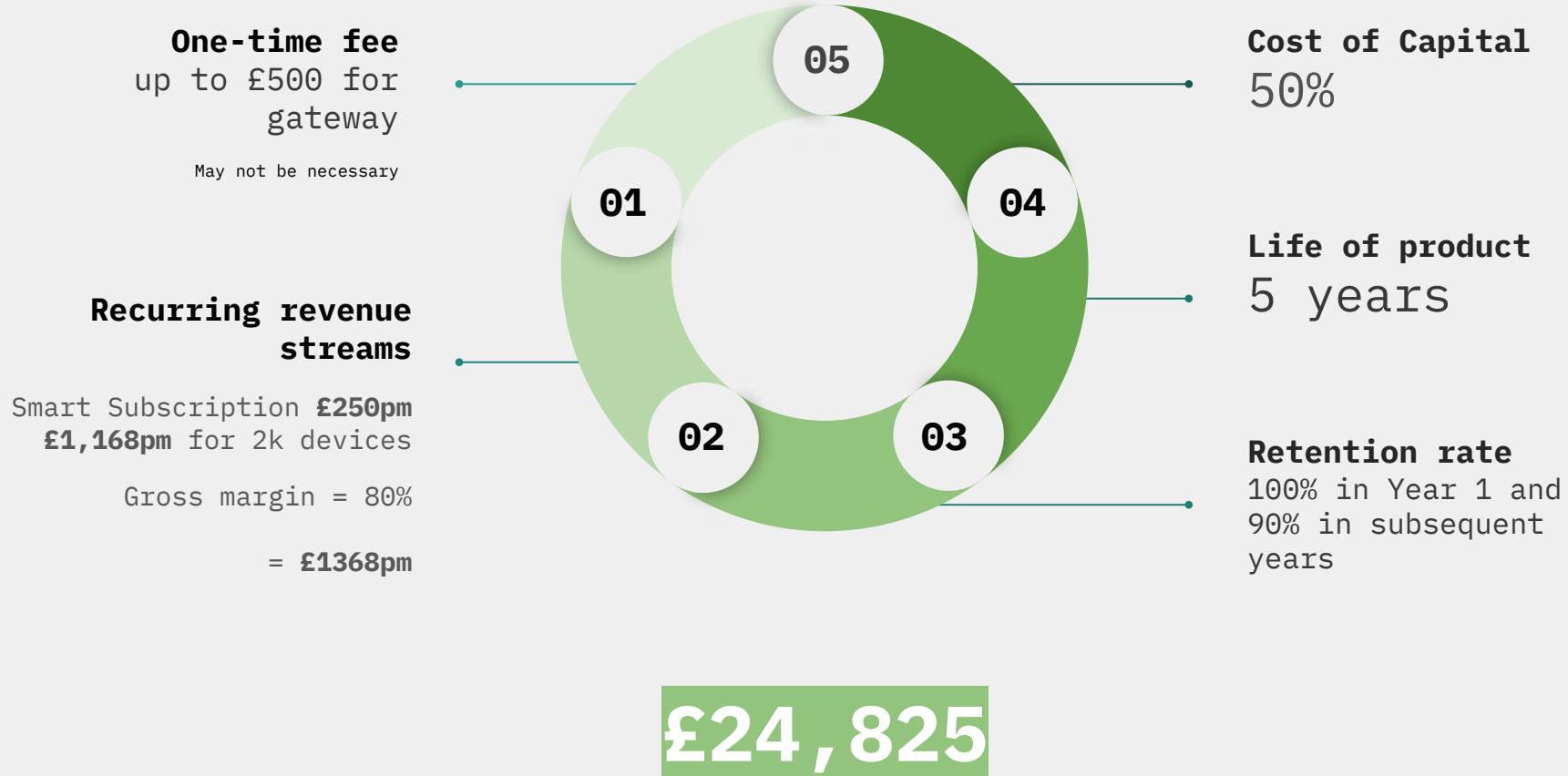
Ingress £0.00002 / request

Egress £0.00004 / request

1000m ² farm, devices every 0.5m ²	ingress of 30 req/hr	= 21,900 req/month
	egress of 5 req/hr	= 3,650 req/month

$(2,000 \text{ devices} * ((21,900 * \text{INGRESS_RATE}) + (3,650 * \text{EGRESS_RATE}))) = \text{£1,168/month}$

Lifetime Value



Cost of Customer Acquisition

Assumptions

- Two (large) customers in Year 0
- **Market and Sales** (M&S) budget = 30% of annual revenue
- **Install Base Support** (IBS) = 5% of LTV
- Number of new customers = 2

Method

- Revenue from two customers: £35,032
- Marketing and Sales budget: £12,261
- COCA formula:
 - $(\text{M\&S Expenses} - \text{IBS}) / \text{Number of new customers}$

£5,693

LTV:COCA = 4.36:1

Windows of Opportunity & Triggers

1

Window

A farm Owner sees new IoT devices that are **incompatible** with his current software



Trigger

Finds our product that promises **compatibility** & better features than their current software



Outcome

Enquires into our product to enable the use of their new device and **all pre-existing devices**

2

Window

New CTO, CIO or Manager hired



Trigger

Offer to review inventory of software and produce a report on how to improve



Outcome

New leaders want change and so are open to reviews and new solutions

3

Window

A Farm is experiencing **high software development costs** due to IoT



Trigger

Our team calls & explains how our software reduces their software development workload



Outcome

When faced with expenses, the customer wants to **improve their profitability** so open to new solutions

Next Customers

AGRICOOOL

GROW
BRISTOL



Shockingly
Fresh

 Vertical Farming
.space

agrilution

HortiMaX

NUTRI SHOOT

 GrowUp
URBAN FARMS

inform

GROWING
UNDERGROUND
SW4

Next Market

Medicinal Marijuana



UK is the world's largest producer of legal cannabis

70% of world total

High level of Controlled Environment Agriculture used

£15.96 mln UK market size in 2020

£1 bln expected UK market size by 2024

Conclusion

We are a SaaS solution that leverages the latest technologies for Cultivation Management.



Thank You

Any Questions?