COMMERCIAL DEVELOPMENT OF AGRI-FOOD TECHNOLOGY INCLUDING ROBOTICS AND AI
Commercial Development of AgriFood technology – Robotics and AI
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- Idea to prototype: 90%
- Prototype to product: 10%
Commercial Development of AgriFood technology – Robotics and AI

Idea to prototype: 90%

Prototype to product: 90%
Taking an idea to a prototype stage is a huge achievement and is certainly not trivial, but turning that prototype into a commercially successful product is just as hard, and crucially it involves different skills and challenges compared to the prototype stage.
Cambridge Consultants: Key Facts

We are an engineering design, development and technology consulting company.

Our clients own arising IP, with no ongoing encumbrance.
Chris Roberts  
*Head of Industrial Robotics*

- Low cost robotics, machine vision and novel automation
- Delivering commercially-ready complex products.
Commercial Development of Agri-Food technology: Robotics and AI

- Agriculture is facing a variety of challenges that require innovative solutions, including pressures of labour shortages and a desire for increased precision farming
- The market is there for new solution & the technology is ready

- Developing new technology is expensive
- Traditional suppliers are not ready to invest

- How can we address this?
- Be realistic about what it takes to turn an idea into a product
CATERING
RE-THINKING THE INDUSTRIAL KITCHEN

STRAWBERRY HARVESTING
AGRI ROBOTICS
CATERING
RE-THINKING THE INDUSTRIAL KITCHEN
Technical due diligence on an automated strawberry harvesting startup for a large US firm

<table>
<thead>
<tr>
<th>Does it work?</th>
<th>How much more money?</th>
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<tr>
<td>- How well does it pick strawberries?</td>
<td>- How much more time to turn it into a product?</td>
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<tr>
<td>- Can we use it in our fields?</td>
<td>- How much more engineering effort?</td>
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Success! We can pick 85% of accessible strawberries!

- **IN LAB**: 89 picked, 11 missed
- **IN FIELD**: 85 picked, 15 missed
Success?

Not necessarily…

- Is 85% enough? How well would a human do?
- How long did it take to pick the 85%? Faster or slower than a human?
- Did you pick any you shouldn’t have?
- What is “accessible”? Why does that matter?
- The company is only interested in cost of picking all the strawberries
- What happens after picking – grading, trimming, packing, etc, if the robot doesn’t do that, you need more robots

- Performance metrics must be carefully chosen
A significant project remains after prototype
STRAWBERRY HARVESTING
AGRI ROBOTICS

CATERING
RE-THINKING THE INDUSTRIAL KITCHEN
HOW CAN WE CREATE TWICE AS MUCH BUSINESS WITH THE SAME NUMBER OF STAFF?
AUTOMATED COOKING

LOGISTICS – MOVE TO USER

DISSHWASHER LOADING
AUTOMATED COOKING

LOGISTICS – MOVE TO USER

DISHWASHER LOADING
AUTOMATED COOKING

LOGISTICS – MOVE TO USER

DISHWASHER LOADING
Optimising hub placement to improve cost and efficiency
AUTOMATED COOKING

LOGISTICS – MOVE TO USER

DISHWASHER LOADING
There is not a lot of slack in a day so there is no added efficiencies which can be achieved by a human.

Each bar is a type of staff member
Each colour is a task type
Commercial Development of AgriFood technology – Robotics and AI

- Be realistic about what it takes to turn an idea into a product
- Understand all the costs involved and who should pay them
- Focus on the metrics that are important to your customer