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PickMarket

A new way to provide the UK with sustainable, affordable, fresh food.

PickMarket

Opportunity to change shopping and eating habits away from packaged fresh food which has been grown far away, often overseas.

Educational opportunities for teaching the public what foods are available in the UK, throughout the seasons. This will encourage a behaviour change toward buying local, more sustainable food.

Environmental benefits
- no transport of goods
- no packaging
- fresher food
  = less food waste

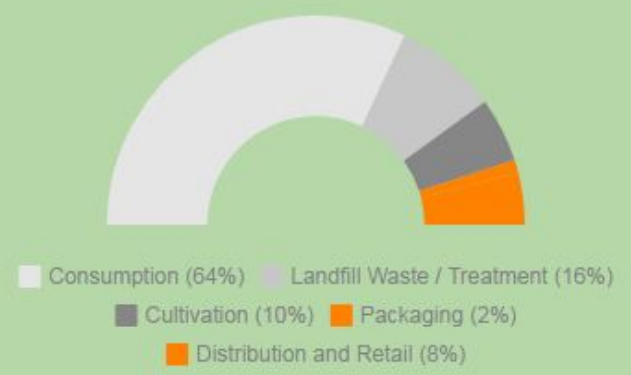
Possibility of building new stores on brownfield or unused land to aid area regeneration

Consumers pick their own fresh food which has been grown in the store. The greenhouse allows an array of foods to be grown year round, providing local, seasonal produce.

Problem - How to sustainably and affordably access fresh food

Packaging protects products in transit and helps maintain shelf life for perishable goods.

(Why Do We Need Packaging?, n.d.)



Over two thirds of UK food and drink packaging waste is from the household.

(Food Statistics Pocketbook 2016, 2016)

Packaging and distribution account for 10% of the overall impact to global warming.

(Foster et al., 2006)

PickMarket

Removing transportation and distribution in the food chain would negate the need for packaging.

PickMarket is a new type of shopping system where the food is grown on site and picked by customers.

Context of the Problem

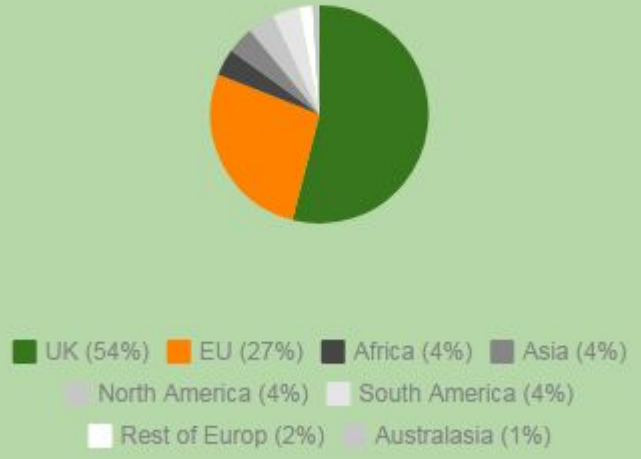
21.9 megatonnes of greenhouse gases linked to UK food supply in 2008.

(Wong, 2016)

The UK's largest food bank charity, The Trussell Trust, handed out 1,182,984 three day emergency food supplies in the last year.

(The Trussell Trust, 2017)

The UK imports almost half of the total food consumed.



(Food Statistics Pocketbook 2016, 2016)

An increasing population and stalling farm productivity will increase reliance on imported foods, according to The National Farmers Union. This will increase packaging, transport and distribution.

(Harvey, 2015)

Brexit...

If trade barriers increase, regions will become more dependent on local production... prices may increase.

(Brexit Monitor - The impact of Brexit on the AgriFood industry, 2016)

Increasing food production in the UK may protect consumers against increasing prices, while reducing the environmental impact of food production.

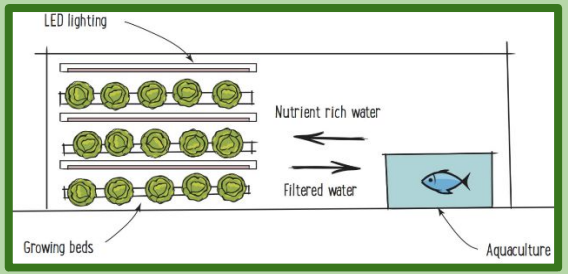
Other Food Growing Systems

The Farmery

(Farmery, 2017)

Based in South Carolina, food is grown and sold together. Their aim is to change the relationship consumers have with food.

GrowUp Urban Farms

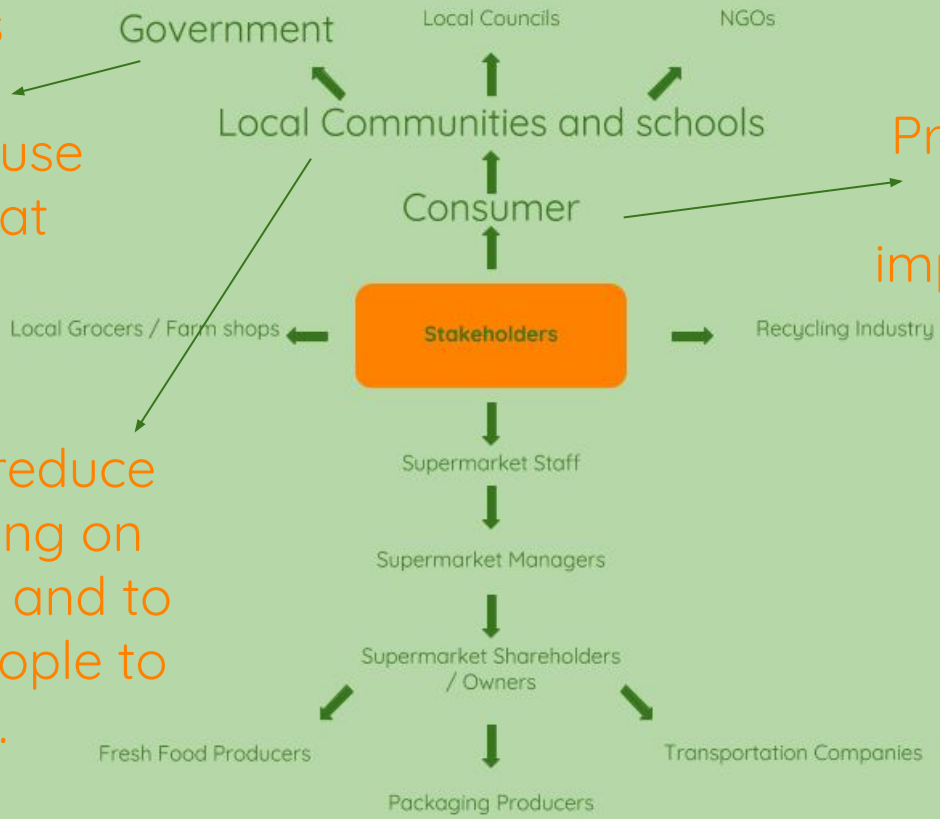


(GrowUp Urban Farms, 2017)

Based in London, GrowUp uses aquaponic technology to grow produce in a closed loop system.

Stakeholders

UK government is committed to reducing greenhouse gas emissions by at least 80% of 1990 levels by 2050
(Theccc.org.uk, 2017)



Price and quality are currently the most important influencers in behaviour.
(Food Statistics Pocketbook 2016, 2016)

A need to reduce those relying on food banks and to connect people to food.

How PickMarket Meets Stakeholder Needs

Encourages behaviour change toward sustainable purchasing.

No packaging, transport or distribution is required, reducing CO2 emissions.

Opportunity for community led initiative, offering low cost produce.

Educational opportunities to teach about produce, seasonality, and the benefits of local food.

Material Aspects

Heating?

Using heated greenhouses in the UK is less sustainable than importing.

(Gray, 2007)

No heating will be used - we will rely on growing food seasonally.

The aim is to educate consumers on what is available locally, throughout the year, changing attitudes toward the origins of their food.

Implementation

There are two paths which could be followed, aided by government initiatives...

Community Initiative

Government provides grant to council or community group to open and maintain a store.

Adoption by Private Enterprise

This innovation has the potential to cut costs in the food chain. Government subsidies may encourage adoption.

Implementation

Change agents are required in the most valuable stakeholder groups.

MP or Councillor who understands the need for sustainable food.

Community Group Leader who would drive a social initiative forward.

Optional - Supermarket Business Leader looking to champion sustainability.

Implementation

No matter the path, the stages of implementation should remain the same...

Trial

Work out the best growing conditions and test technologies to optimise yield.

Increase community involvement

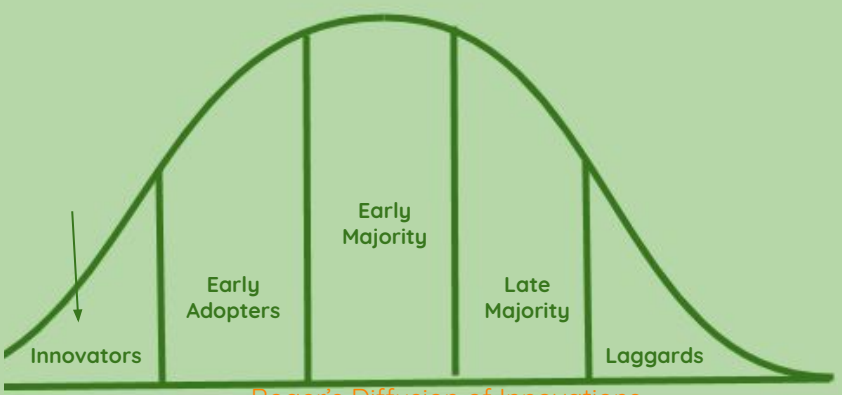
Schools and community groups learn about planting and maintaining crops before and once opened.

Staff Training

Staff need to know how to look after the plants and how to educate consumers.

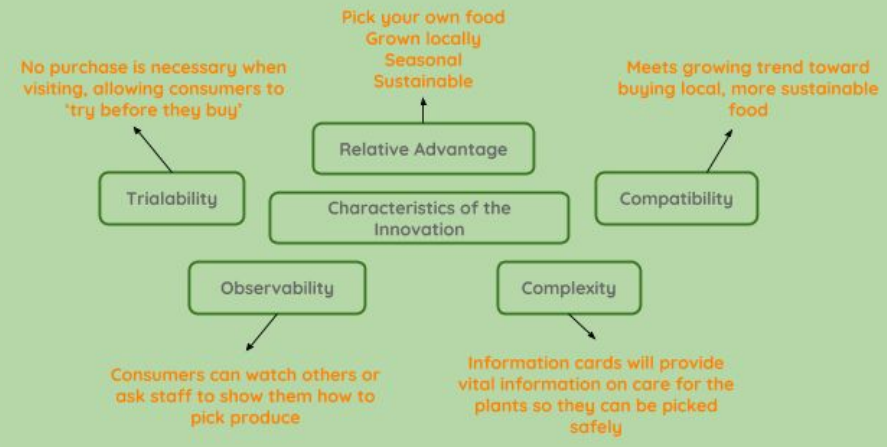
Diffusion

PickMarket's initial consumers will be 'Innovators' - sustainability advocates, looking to buy ethically and locally.



Roger's Diffusion of Innovations

Roger's Characteristics of the Innovation framework will allow change agents to understand adoption rates of users and assist with diffusion strategies.



(T317 Innovation: designing for change: Block 1 Unit 2 Product innovation: the racing bike, 2017)

Environmental Life Cycle Analysis

Life cycle stage - Conventional Supermarket				
Environmental Impact	Raw materials/ manufacture	Transport/ distribution	Use/ Maintenance	Disposal/ recycling
Materials inputs and outputs	😈😈😈 Soil, seeds, machinery for cropping, packaging	😈😈😈 Packaging, transportation vehicle, distribution centre, CO2	😇 No materials	😈😈😈 Packaging waste
Energy inputs and outputs	😈 Sun, water, electricity	😈😈 Electricity, fuel for transport, CO2	😈😈😈 Cooking - highest CO2 emissions	😈😈 Disposal and recycling energy
Toxic emissions	😈 Packaging machinery	😈😈 Emissions from transportation and distribution of produce	😈😈 CO2 from cooking due to fuel use	😈😈😈 Emissions from transport, organic waste, recycling

Life cycle stage - PickMarket				
Environmental Impact	Raw materials /manufacture	Transport /distribution	Use /Maintenance	Disposal /recycling
Materials inputs and outputs	😈 Soil, seeds	😇😇😇 No transport / distribution	😇 No materials	😈 Organic waste
Energy inputs and outputs	😈 Sun, water, electricity	😇😇😇 No transport / distribution	😈😈😈 Cooking - highest CO2 emissions	😈 Organic waste recycling energy
Toxic emissions	😇	😇😇😇 No transport / distribution	😈😈 CO2 from cooking due to fuel use	😈 Emissions from organic waste

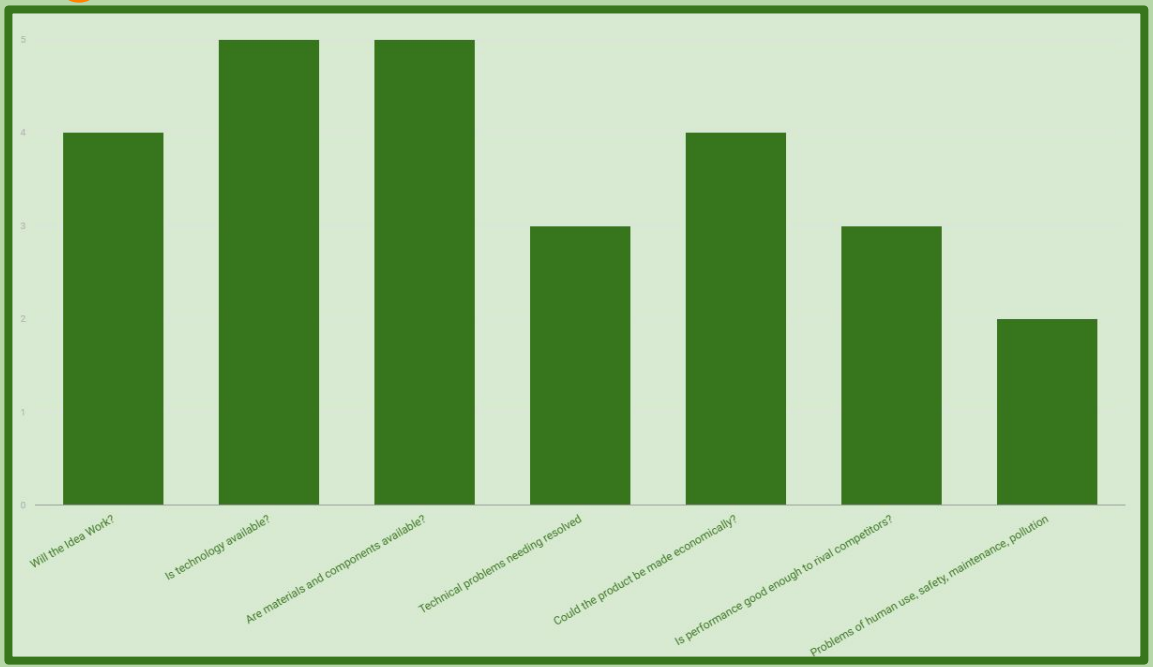
Conventional Supermarket - 😇😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈😈

PickMarket - 😇😇😇😇😇😇😇😇😇😇😇😇😇😈😈😈😈😈😈😈😈😈😈😈

The removal of transport and distribution creates a big opportunity to increase sustainability.

Technical Feasibility

Using a technical feasibility checklist, a score was given to each between zero and five.



Human error in choosing appropriate produce for the geographical location, and the growing process cause the greatest concern. These risks must be mitigated through education and training.

Practical Feasibility

Will there be enough produce? A Pea Case Study

1949 households per super/hypermarket in the UK. On average, 2535 portions of peas per month

633 Pea plants required to produce enough for current consumption

1 cubic foot of space required for each plant = 633 cubic feet (the length of over 19 double decker buses) (En.wikipedia.org, 2017)

More local stores would likely be required to provide enough, however, new technologies (e.g. vertical growing hydroponics) could increase the available growing space. This should be tested in the first PickMarket.

Economic Feasibility

A Pea Case Study continued...

	One tonne of peas exported from Kenya, Transported to the UK		One tonne of peas grown in a PickMarket and sold on site	
Stage	Price per tonne £	% of final price	Price per tonne £	% of final price
Producer	630	12	630	20
Exporter	290	6	0	0
Packaging	280	5	0	0
Air freight	1040	20	0	0
Importer	620	12	0	0
Supermarket	2500	45	2500	80
Total price	**5360**	**100**	**3130**	**100**

43% of the overall cost in bringing peas to the UK market is attributable to the transportation and distribution system.

While costs of production may be higher in the UK, this reduction in cost should be sufficient to make the PickMarket economically viable.

(Imported food from Africa – additional information, n.d.)

PickMarket

PickMarket offers a viable opportunity where communities can access sustainable, affordable fresh food. A connection between the land, food and consumers will be created, helping to change our current consumer driven culture into one where locally grown, seasonal, good quality food is available throughout the UK.

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