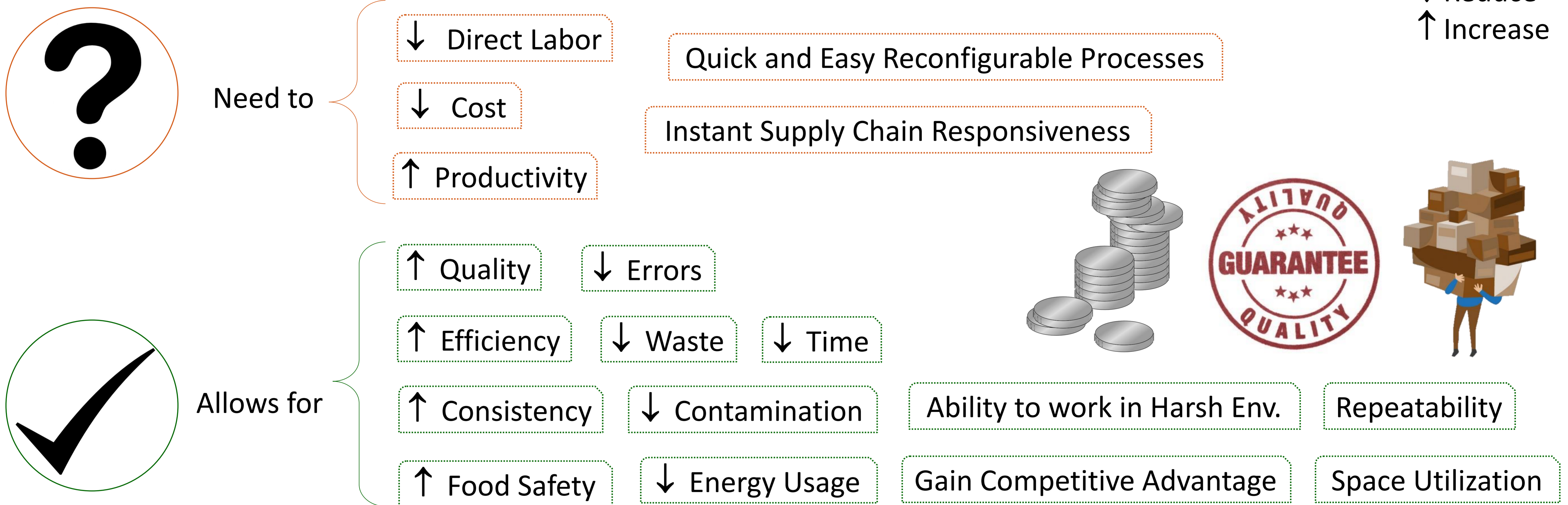


# Use of Robots to Provide Flexible Automation in Food Manufacturing

## 1. Introduction

As consumer preferences continue to change, the UK's food manufacturing industry struggles to keep up. The existing rigid structure of automated processes hinders a manufacturer's ability to quickly respond to the market. Flexible low-cost automation via the use of robotic systems would offer food producers, especially SME food Manufacturers, the ability to quickly respond to consumer demands.

## 2. Drivers for Flexible Automation



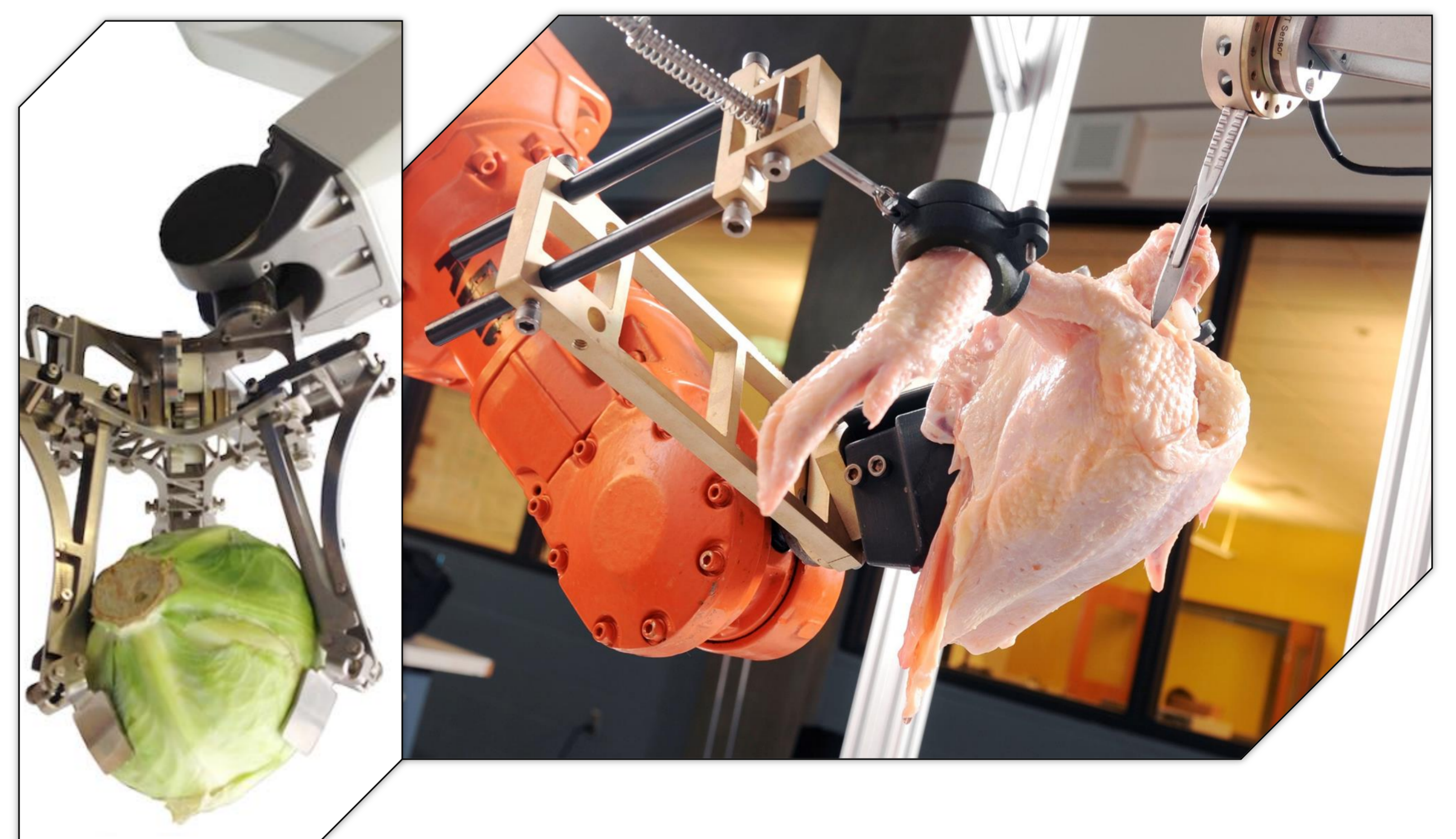
## 3. Uses of Robotics in Food Manufacturing

Currently the food industry employs robotic automation for end-of-line processes such as:

- Packaging
- Palletising
- Handling of finished products
- Pick and Place

## 4. Challenges of Flexible Automation

- Foodstuffs are delicate, non-rigid material that are easily deformable so there is an inherent need for robots to be able to handle and process raw foods.
- SMEs remain hesitant to implement large scale automation as it needs a substantial investment. They also have concerns over availability of skills to look after automated processes, ongoing maintenance costs, the return on investment and their process adaptability.



## 5. Future Work

This research investigates the development of robotics for the food industry and its utilisation by SMEs by :

- 1) Reviewing and classifying the robotic designs most suitable for handling and processing foodstuffs.
- 2) Identifying and designing processes that benefit from flexible automation offered through robotic solutions .