

Whole-chain resource efficiency

Preventing waste and improving efficiency through collaborative working across the value chain

An introduction to our self-help toolkit



Purpose

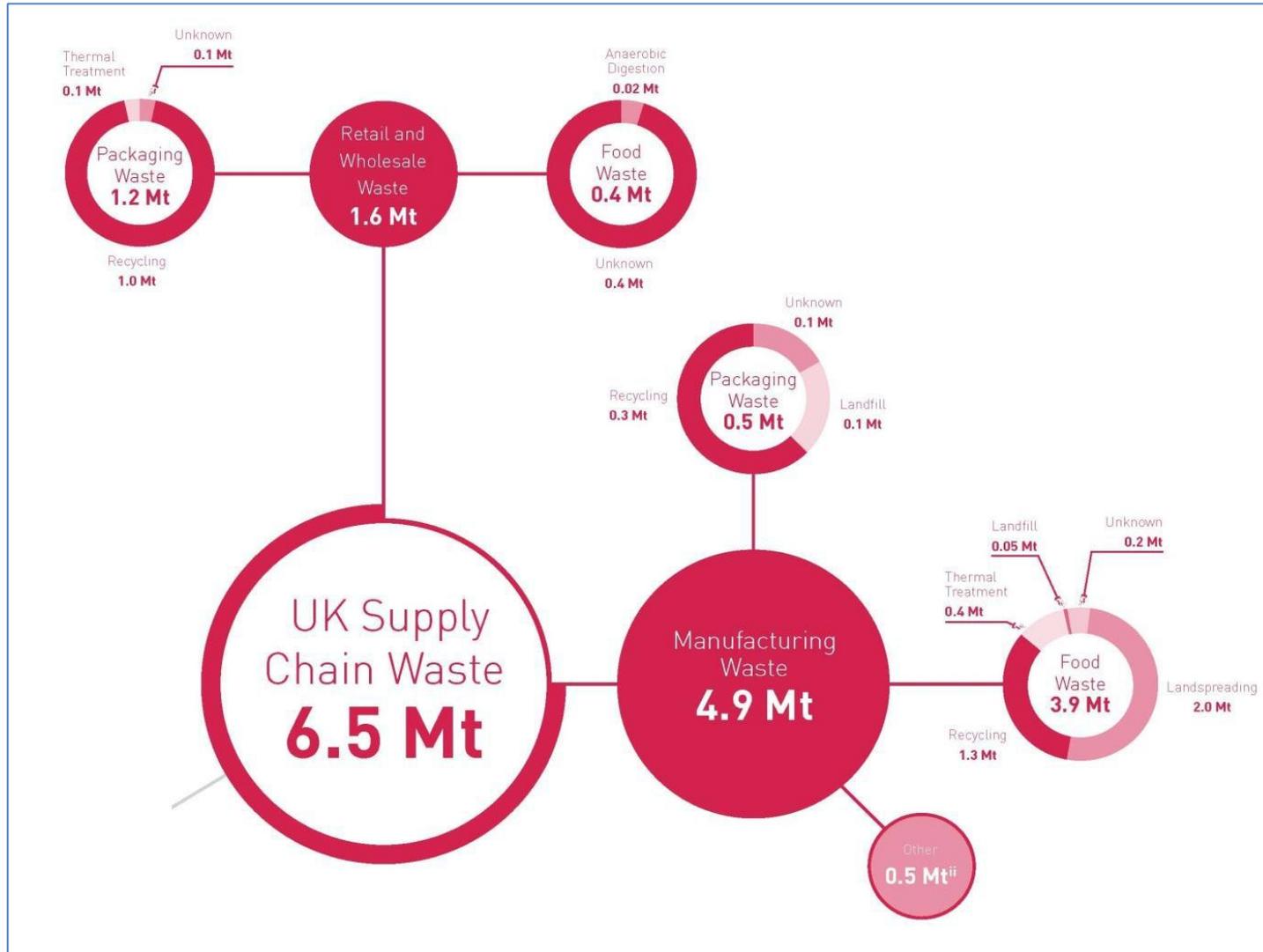
We have produced an on-line toolkit designed to help you save money and improve resource efficiency

These slides introduce the approach and benefits of running a whole chain resource efficiency project

You can find the full toolkit [here](#)

For more information on support, contact:
elaine.charlesworth@wrap.org.uk

What is the supply chain level of opportunity?



http://www.wrap.org.uk/sites/files/wrap/Estimates%20of%20waste%20in%20the%20food%20and%20drink%20supply%20chain_0.pdf

What is the level of opportunity in food waste prevention?

Food waste is estimated to cost food manufacturers:

£950/tonne

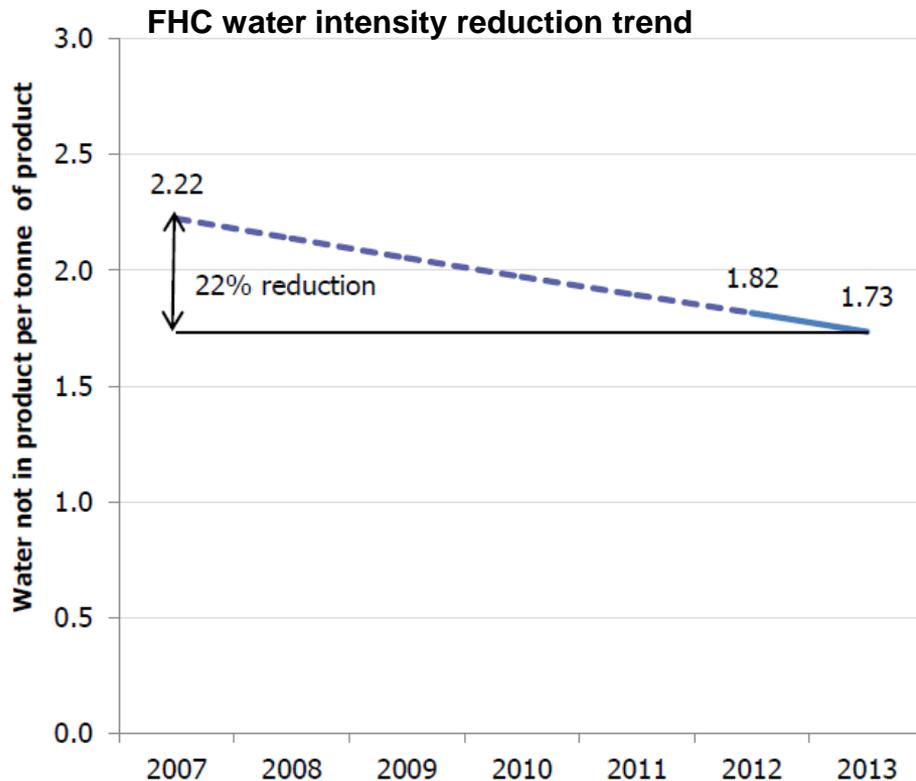
When the cost of the food/ingredients, energy and water costs, disposal costs and lost profit are taken into account

The 3.9 million tonnes of food waste generated in food manufacture annually in the UK therefore equates to a total value of:

£3.7 billion

What is the level of opportunity in water efficiency?

Recently, food and drink manufacturing signatories to the Federation House Commitment (FHC) water reduction programme reported:



15.6% reduction in water *use*
2007-13

22% reduction in water *intensity*
from 2007

£2m saving in water *costs*
2012-13

What is the level of opportunity in energy efficiency?

Energy costs are rising, and efforts to reduce energy use are becoming a commercial imperative.

Carbon Trust research indicated that in 2010, the food processing industry consumed nearly 37TWh (enough energy to power 125,000 homes for nearly 15 years).

Food industry contributes 14% to total energy consumption by UK businesses¹

Low and no-cost actions can usually reduce energy costs by at least 10% and produce quick returns²

A 20% cut in energy costs represents the same bottom line benefit as a 5% increase in sales in many businesses²

¹Defra, FISS, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69283/pb11649-fiss2006-060411.pdf page 2

²Carbon Trust, <http://www.carbontrust.com/resources/guides/energy-efficiency/better-business-guide-to-energy-saving>

Whole Chain Resource Efficiency projects

= focus on customer value, with any activities along the supply chain that do not add customer value representing opportunities for savings.

Do more with less

Save money and resources

What does a whole-chain resource efficiency project involve?



Farm → Processor → Store → Home

Focus on the most significant opportunities through **Hotspot analysis**.

This includes:

**Water • Energy • Raw materials • Product waste
... and Money**

Why do it?

Cost savings

Innovation

Collaboration

Risk mitigation

Competitiveness

Sustainability targets

Reputation

CSR

£ Putting a cost on problems = catalyst for change

“There were people working in this organisation for 10 years who had never met and never discussed this issue before.”

Rob Hull, Fruit and Veg Operations Manager, Farmcare

What are the results from previous projects?

Completed



Budgens

- Up to £60,000 savings

- Top fruit range review
- Store guidance on storage and handling
- Extended shelf life
- Increased centralised food waste monitoring

Completed



WILLIAM JACKSON
FOOD GROUP

- Up to £370,000 savings

- Managing in-take variability on onion rings
- Better use of data
- Targeted on farm improvements
- Increased yield at processing by 10%

Completed



The co-operative

- Up to £600,000 savings

- More efficient irrigation for potato crops
- Challenging variety norms
- Flexing size bands

Completed



Nestlé

- Chocolate crumb project
- Case study being drafted

In progress



2 sisters
Food Group
Every Meal Occasion

- Beef project
- To be completed

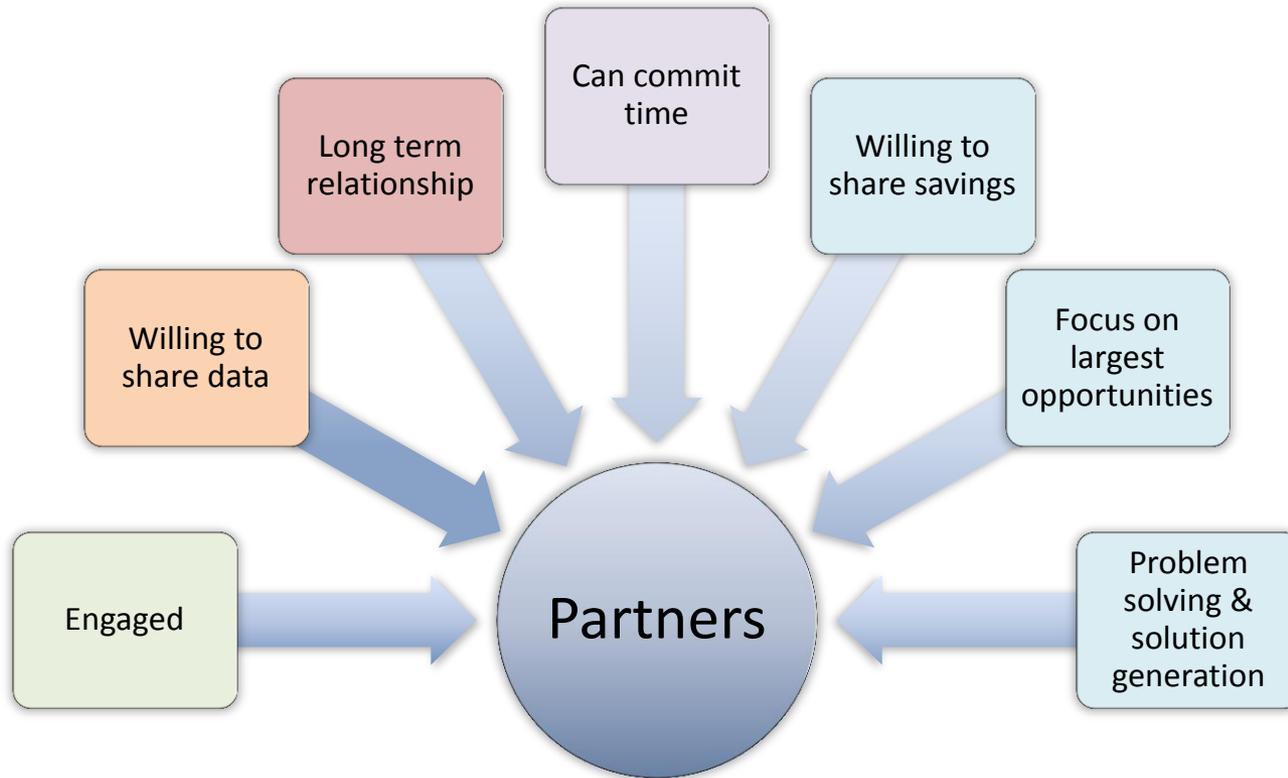
In progress



TULIP

- Pork (bacon) project
- To be completed

What are the critical success factors?

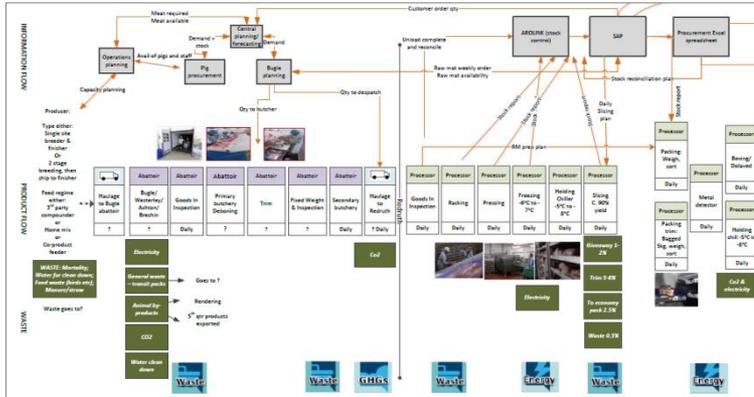


How to choose a value stream

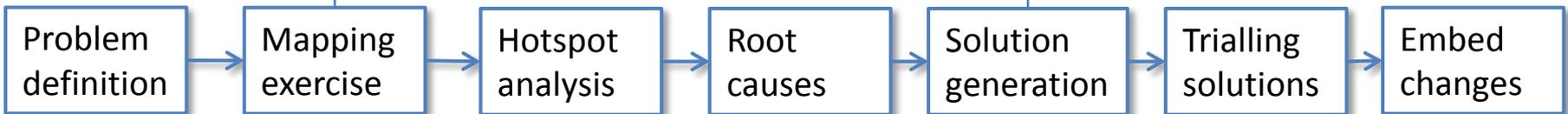
- Are there high waste volumes?
 - Intake material
 - Packaging
 - Store waste
 - Poor yield
 - High rework levels
 - High energy use
 - High water use
- Is it important?
 - High value
 - High volume
 - Future growth potential
 - Reduced service levels
- Has it got a future on customer shelves?
 - Viable
 - Long term

How can you do it?

Problem-solving 'lean' approach to identifying waste



Solution Development							
Proposed Solution(s)	Point of Intervention	Potential annual savings (Units)	Potential annual savings (£)	Cost of implementation (£)	Opportunity payback in years	Impact/opportunity (1 = high, 5 = low)	Ease of implementation (1 = Easy and 5 = Difficult)



Areas of significant losses *Draw*

Summary of resource maps detailing percentage loss and waste for eleven different fruits and vegetables through the value chain

Product	Field loss (Central range)	Grading loss	Storage loss	Packing loss	Retail waste
Strawberry	2-3%	1%	0.5%	2-3%	2-4%
Raspberry	2%	No data	No data	2-3%	2-3%
Lettuce	5-10%	No data	0.5-2%	1%	2%
Tomato	5%	7%	No data	3-5%	2.5-3%
Apple	5-25%	5-25%	3-4%	3-8%	2-3%
Onion	3-5%	9-20%	3-10%	2-3%	0.5-1%
Potato	1-2%	3-13%	3-5%	20-25%	1.5-3%
Broccoli	10%	3%	0%	0%	1.5-3%
Avocado	No data	30%	5%	3%	2.5-5%
Citrus	No data	3%	No data	0.1-0.5%	2-2.5%
Banana	No data	3%	No data	0-3%	2%

Action plan
What - Who - When - Savings - Cost - Ease of implementation

A flexible approach

Allow the project to 'fit' your chain Address priorities by tailoring the approach if needed

This is a step-by-step whole chain approach, but the process may highlight at an early stage the areas that need to be tackled as a priority, and take the project in a particular direction and focus. For example, a few of the completed projects varied their chain, timing and scope in this way:

Flexible chain

With onions, the team focused on farm and processor due to limited ability to intervene at customer end (ready meals etc)

Flexible timings

Some ambitious projects may do better to focus first on a basic evidence base to quantify hotspots. Action planning can be a second stage

Flexible scope

With apples, store waste was a key issue across all fresh produce, so the product scope was widened

What's the investment?

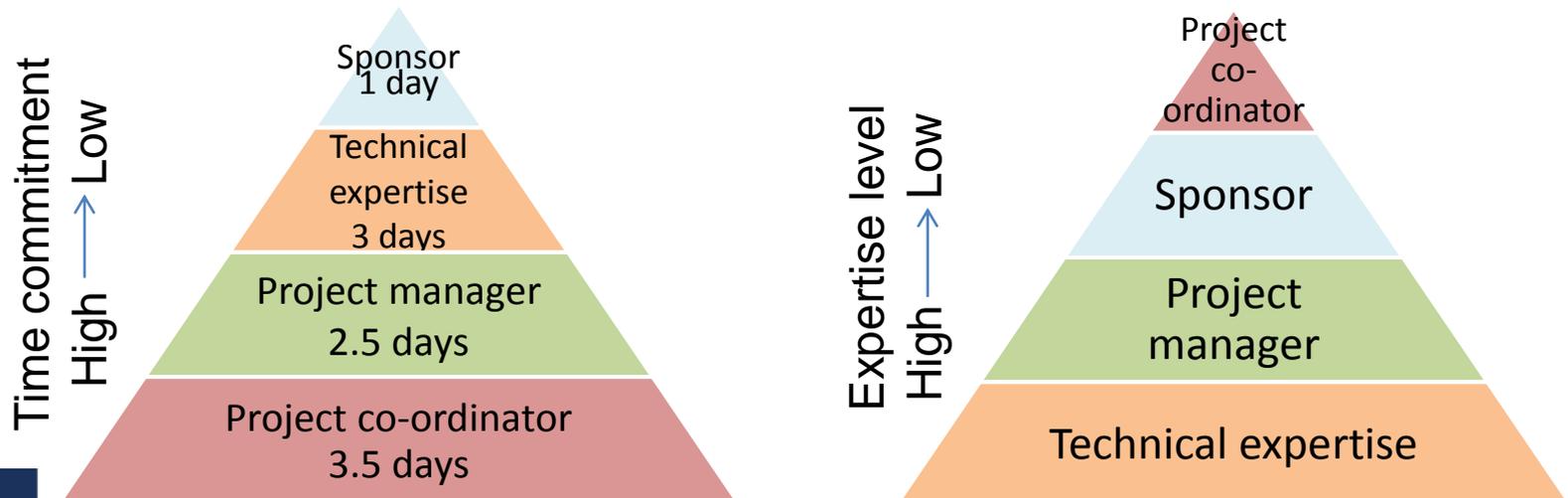
Time: 8-10 days *per team* (an average of 2 days per person, see below)

Money: No capital outlay, just cost of time

Data: Having access to data is required for robust results

People: Senior support/sponsor, technical expertise, project management & co-ordination, implementation

People requirement



Step by Step Toolkit

WRAP has compiled a step-by-step guide to running a whole chain project

It can be used by anyone within a company to facilitate a project

It takes you through each stage, with explanation, guidance, printable templates and links to further information if needed

Use it from start to finish, or dip in and out to complement your in-house knowledge

Interactive tools

Checklists and templates

Contents of this toolkit

1. Introduction

- What is a Whole-Chain Resource Efficiency project?
- Fresh produce: the scale of the opportunity
- Common issues in fresh produce value chains

2. Getting started

- Developing collaborative working
- Forming a team
- Understanding customer value
- A problem-solving approach to project implementation

3. Implementation

Initiation: Project group meeting

Step 1: Problem definition: mapping the chain and data gathering

Step 2: Root cause analysis - workshop

Step 3: Solution generation – workshop and action planning

Step 4: Trialling & evaluating solutions

Step 5: Embedding and rolling out change

4. Summary and Future steps

Tools:

- ✓ Checklist – [1st group meeting checklist](#)
- ✓ Template – [Project Charter](#)
- ✓ Checklist – [Data relevant to produce](#)
- ✓ Tool – [Problem definition screening tool](#)
- ✓ Template – [Problem definition spreadsheet](#)
- ✓ Template – [Solution generation](#)
- ✓ Template – [Solution prioritisation matrix](#)
- ✓ Template – [Action plan template](#)

Links to further guidance:

- ✓ [Engaging suppliers](#)
- ✓ [Collaborative working](#)
- ✓ [Forming a team](#)
- ✓ [Value stream mapping](#)
- ✓ [What is customer value?](#)
- ✓ [Scoping a project](#)
- ✓ [Lean tools tip sheets](#)
- ✓ [Product action finder](#)



WRAP

Introduction Getting started Implementation Future steps

Step by step guidance

Links to more info



Download the toolkit

<http://www.wrap.org.uk/sites/files/wrap/WCRE%20Toolkit%20V2.pdf>

✓ Use it

Feedback to WRAP

For any help or guidance using the toolkit, contact
elaine.charlesworth@wrap.org.uk

www.wrap.org.uk

While we have tried to make sure this toolkit is accurate, we cannot accept responsibility or be held legally responsible for any loss or damage arising out of or in connection with this information being inaccurate, incomplete or misleading. This material is copyrighted. You can copy it free of charge as long as the material is accurate and not used in a misleading context. You must identify the source of the material and acknowledge our copyright. You must not use material to endorse or suggest we have endorsed a commercial product or service. For more details please see our terms and conditions on our website at www.wrap.org.uk

First published March 2015
MAR102-301

**Waste & Resources
Action Programme**

The Old Academy
21 Horse Fair
Banbury, Oxon OX16 OAH

Tel: 01295 819 900
Fax: 01295 819 911
E-mail info@wrap.org.uk

www.wrap.org.uk

