

**energy
saving
trust**

How does Life Cycle Assessment impact your business and decarbonisation plans?

Stuart Walker

21.11.23



Life Cycle Assessment (LCA)

1. What is it?
2. How does LCA differ from emissions measurement?
3. How does it work?
4. How can it be used in your decarbonisation plan?
5. Interpreting LCA

What is LCA?

LCA is a modelling tool which allows us to understand the full impact of a product or process by considering all the sub-processes required to enable it.

It can be used to:

- Find impact hotspots within the process
- Optimise for a low impact product
- Determine how a product compares to alternatives

Impact vs Emissions

We are all familiar with the idea of greenhouse gas emissions / “carbon footprint”

LCA is used to calculate this at a product level, but can also consider more impacts, for example:

- Land use
- Water use
- Health impacts
- Environmental emissions (toxicity, acidification, etc)

We can also consider non-environmental impacts:

- Social impacts (job creation, socio-economics)



When to use LCA

To understand the impact of your products:

- **If you manufacture a physical product**
(and the manufacture, use, or disposal of the product is likely to have a significant impact on your overall emissions.)
- **If you manufacture a product which has low emissions**
(lower emissions than similar products, or contributes to emissions reduction.)

Is LCA different from emissions measurement?

Yes.

- In emissions measurement we work out the total emissions of an organisation.
- The manufacture of any products is included, but not normally by using LCA
- In LCA we only consider one product at a time.
- Part of the whole organisation's emissions will be attributed to the product (but only a small proportion)

So, LCA and emissions measurement are complimentary but different

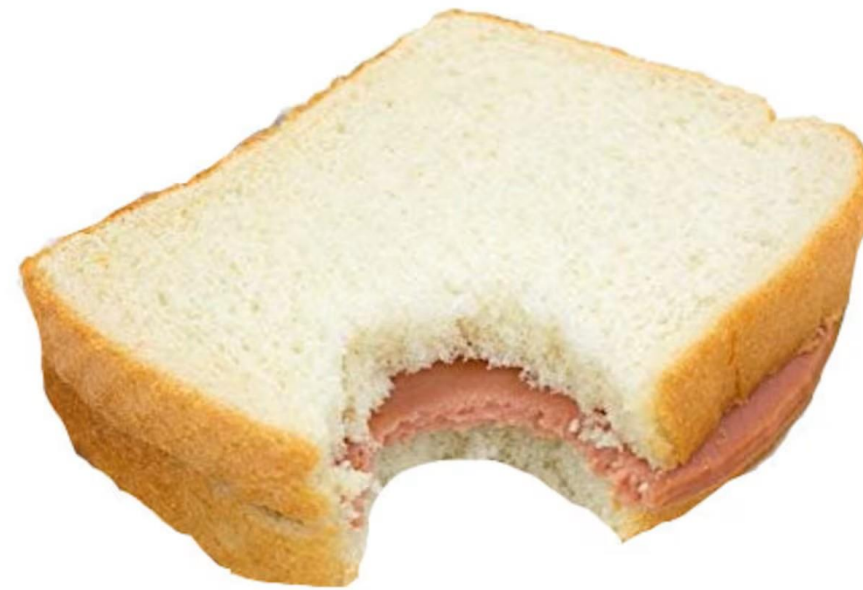
Can you do your own LCA?

In theory, yes.

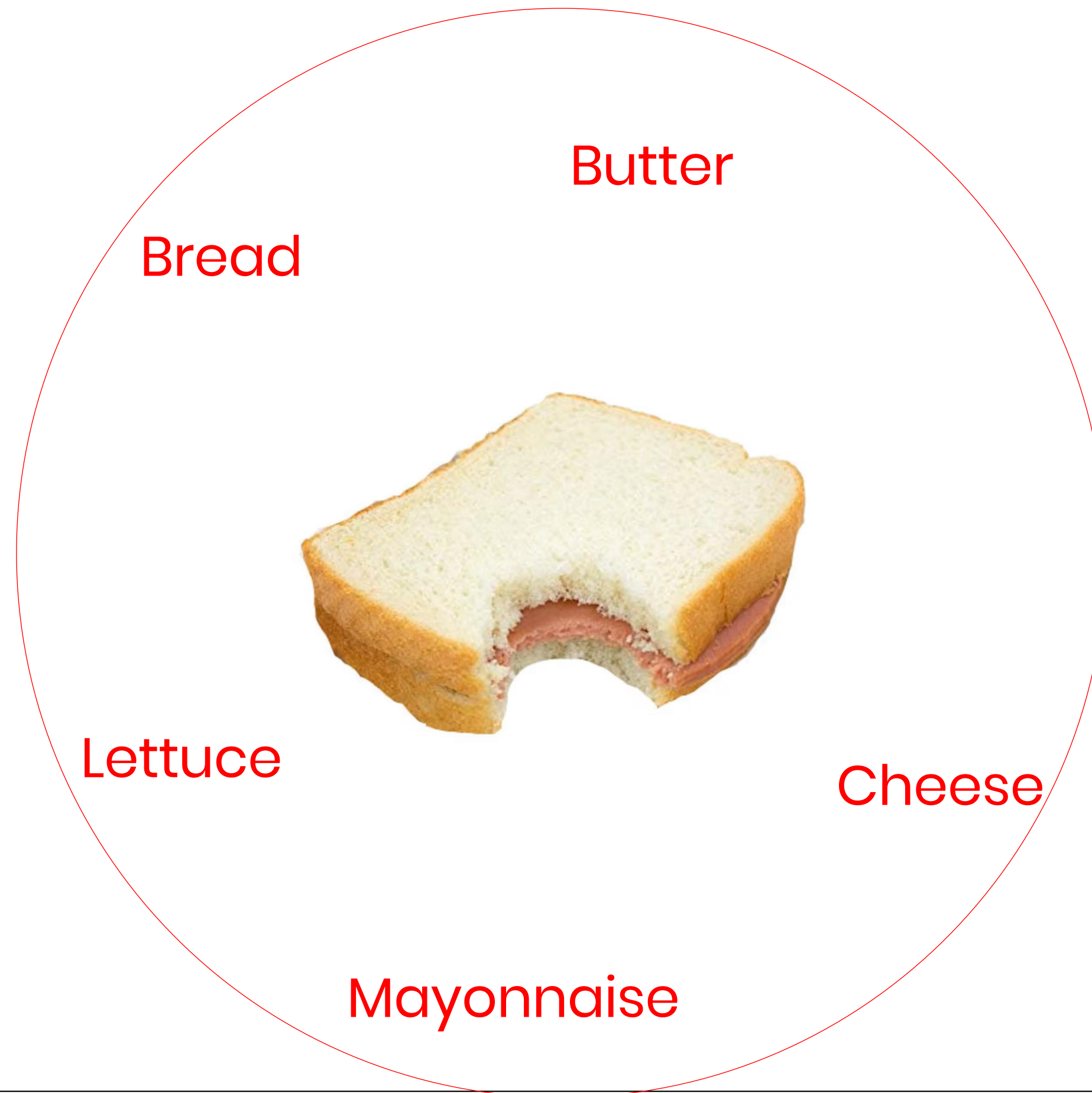
- You would need to purchase software.
- Any declaration or claim would require expert verification.
- If the product is very simple, it may be cost-effective and possible to undertake an initial basic LCA in-house, but this will still require training and software.
- For a complex product or for a full detailed LCA, you would need a consultant.

How does it work?

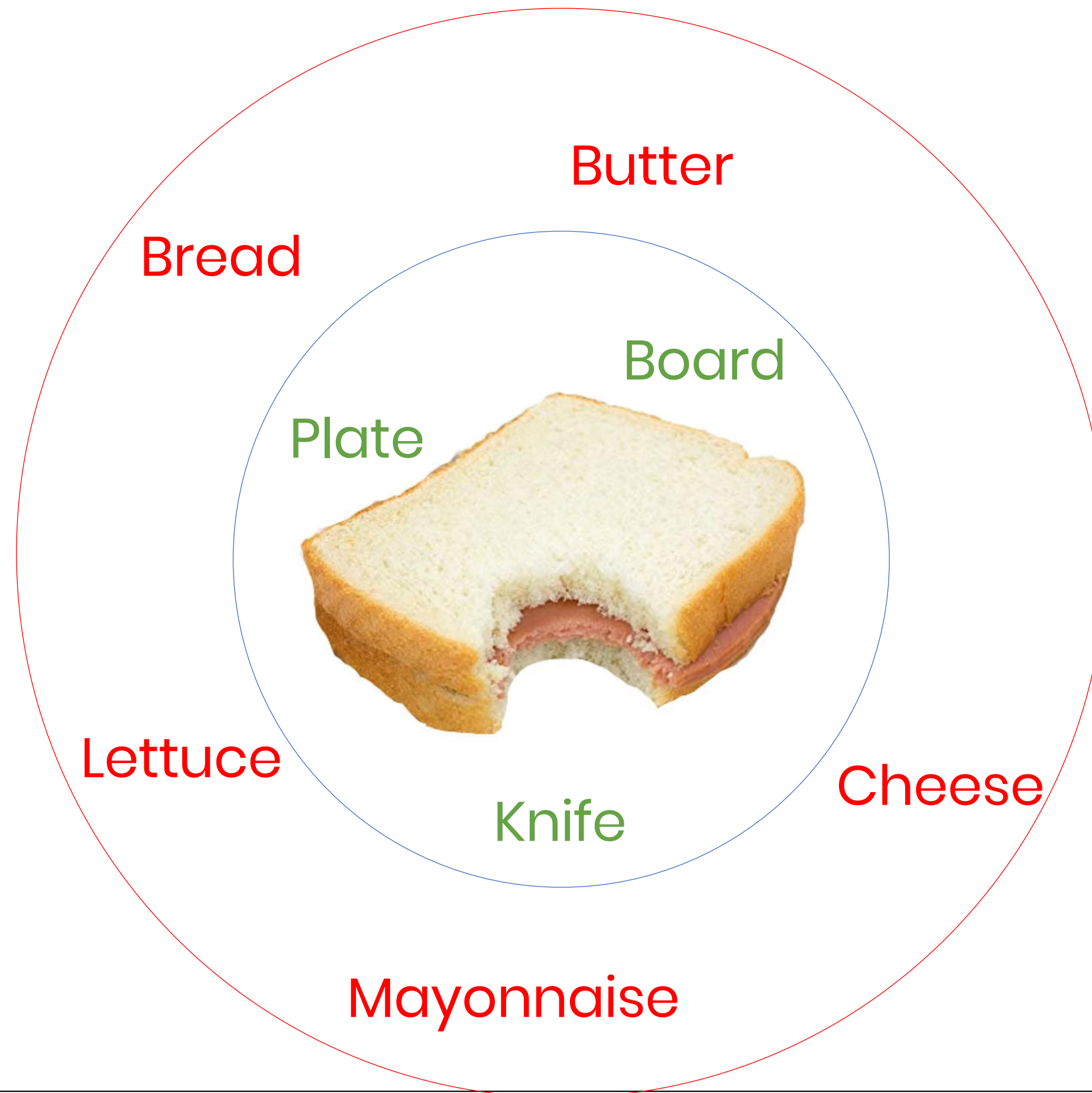
An example: Sandwich



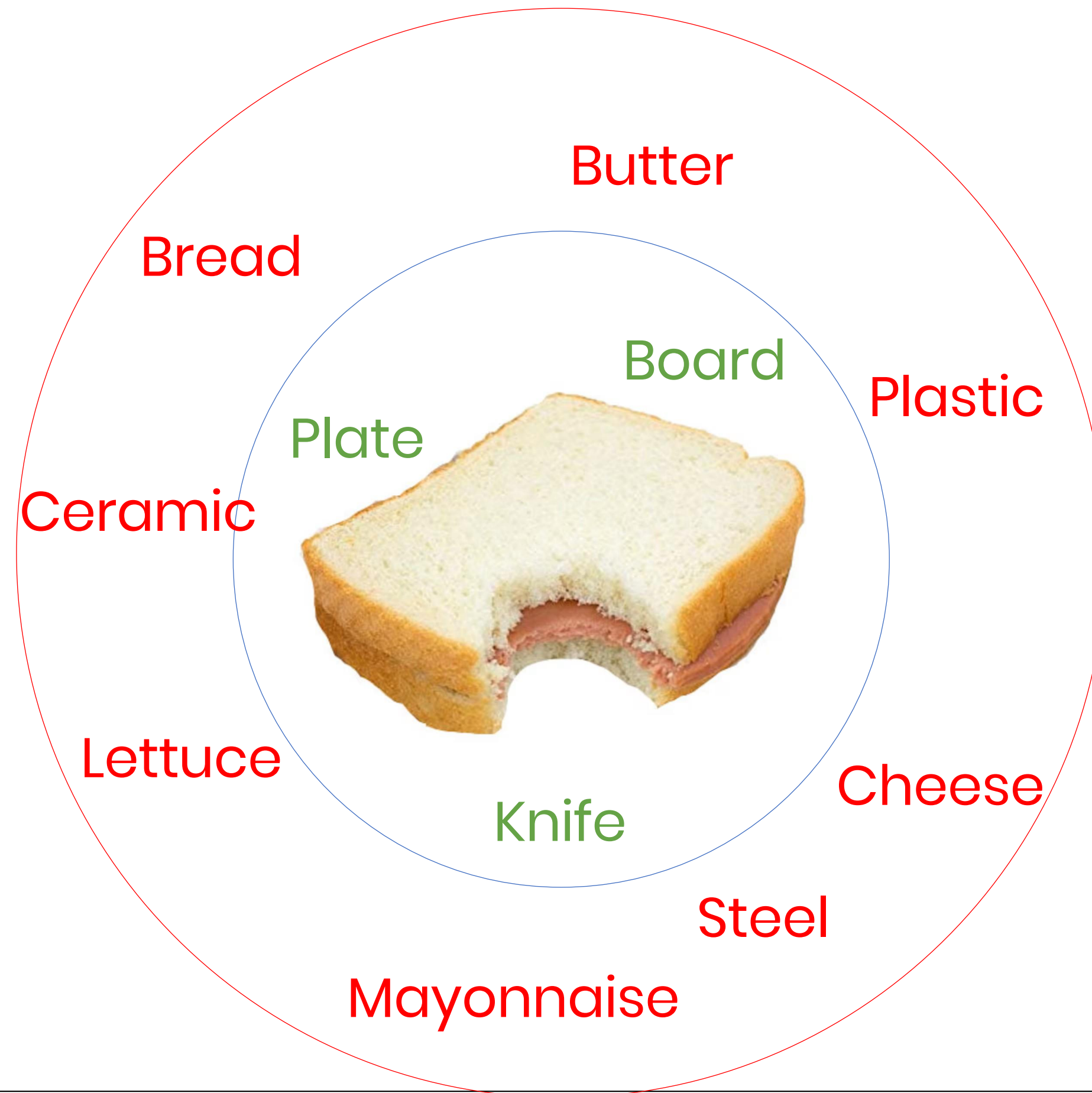
An example: Sandwich



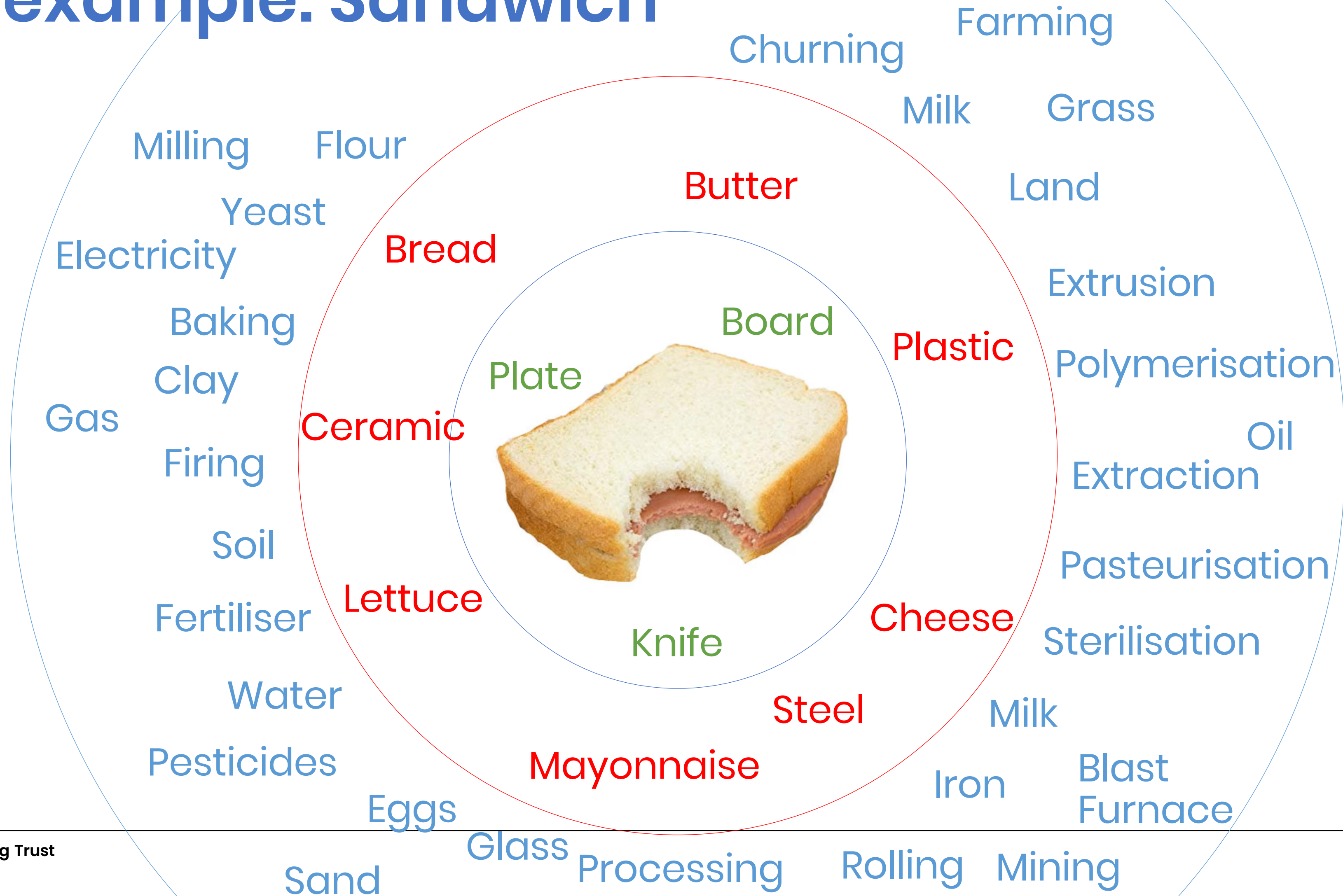
An example: Sandwich



An example: Sandwich



An example: Sandwich



An example: Sandwich

Plate

Ceramic

Clay

Gas

Firing

Board

Plastic

Extrusion

Polymerisation

Extraction

Oil

Knife

Steel

Iron

Blast Furnace

Mining

Rolling

Ingredients

Bread

Flour

Milling

Yeast

Electricity

Baking

Cheese

Pasteurisation

Sterilisation

Milk

Lettuce

Soil

Fertiliser

Water

Pesticides

Butter

Churning

Farming

Grass

Land

Milk

Mayonnaise

Eggs

Sand

Glass

Processing

An example: Sandwich

Plate

Ceramic

Clay

Gas

Firing

Board

Plastic

Extrusion

Polymerisation

Extraction

Oil

Knife

Steel

Iron

Blast Furnace

Mining

Rolling

Ingredients

Bread

Flour

Milling

Yeast

Electricity

Baking

Cheese

Pasteurisation

Sterilisation

Milk

Lettuce

Soil

Fertiliser

Water

Pesticides

Butter

Churning

Farming

Grass

Land

Milk

Mayonnaise

Eggs

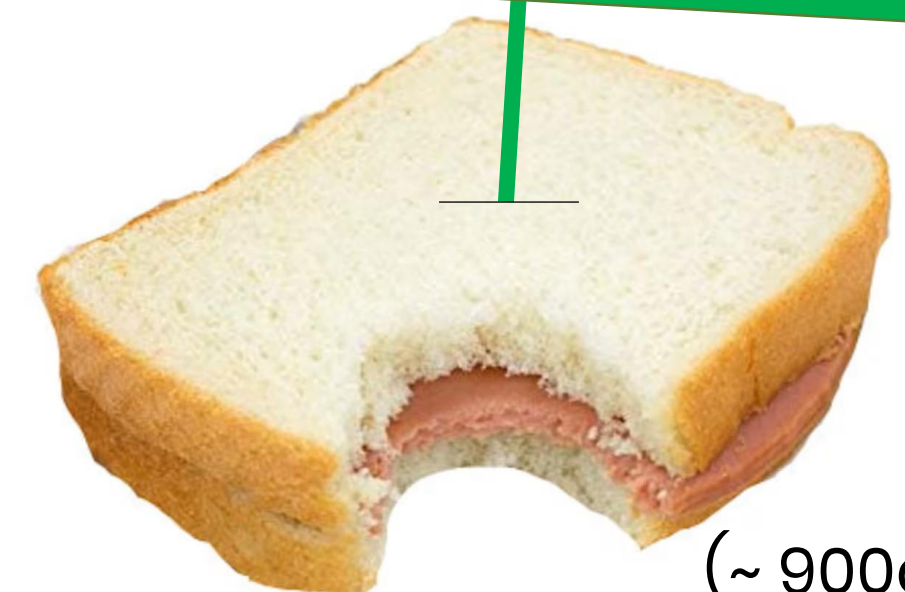
Sand

Glass

Processing

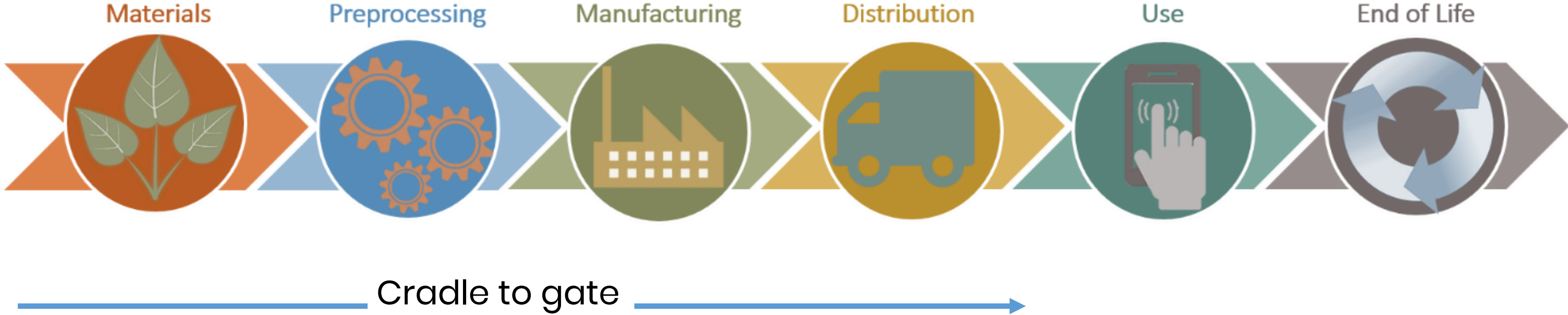
Impact per sandwich:

Greenhouse gas	XX
Eutrophication potential	XX
Acidification potential	XX
Human health impact	XX
Ozone depletion	XX
Land use	XX
Water consumption	XX
Fossil resource use	XX
.....	XX

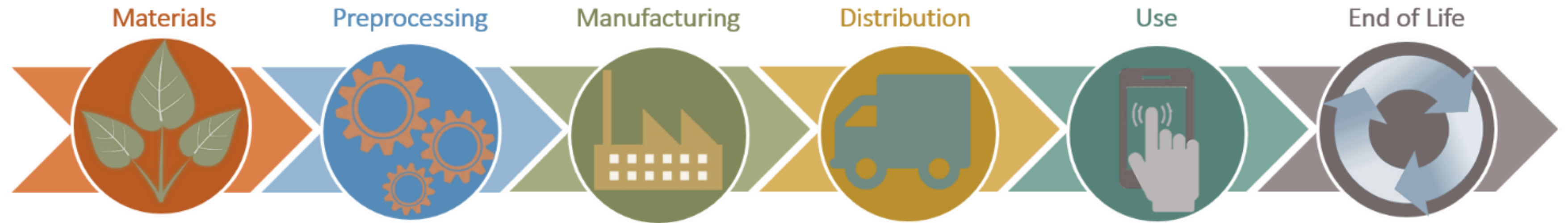


(~ 900gCO₂e,
mostly cheese
and butter)

Life Cycle Stages



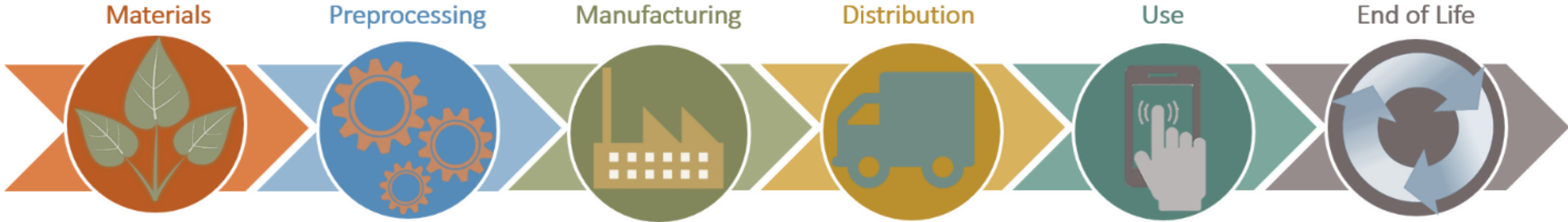
Life Cycle Stages



_____ Cradle to gate →

_____ Cradle to grave →

Life Cycle Stages



_____ Cradle to gate _____>

_____ Cradle to grave _____>

_____ Cradle to cradle _____>

LCA Pros and Cons

+ Pros +

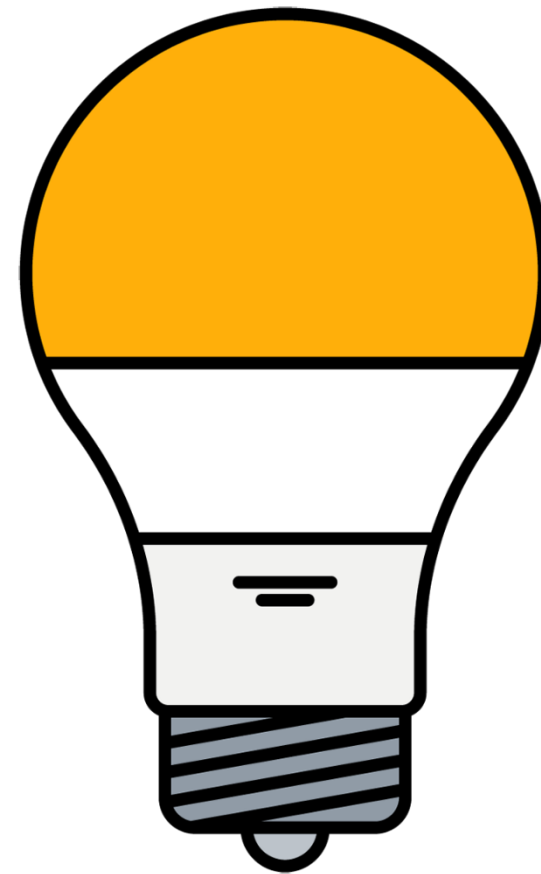
- Allows detailed assessment of the impact of a product
- Highlights hotspots and unforeseen consequences
- Can be used to support environmental claims

- Cons -

- Time-consuming and may require specialist software
- No current universal standards:
 - Results must be treated with caution
 - Comparison pointless if results obtained using different methods

Next webinar

How can you sell more of your green products and services and enable your customers to save energy, money, and the planet?



5 December at 11.30am

energy
saving
trust

Thank you

