

BREAD WASTE

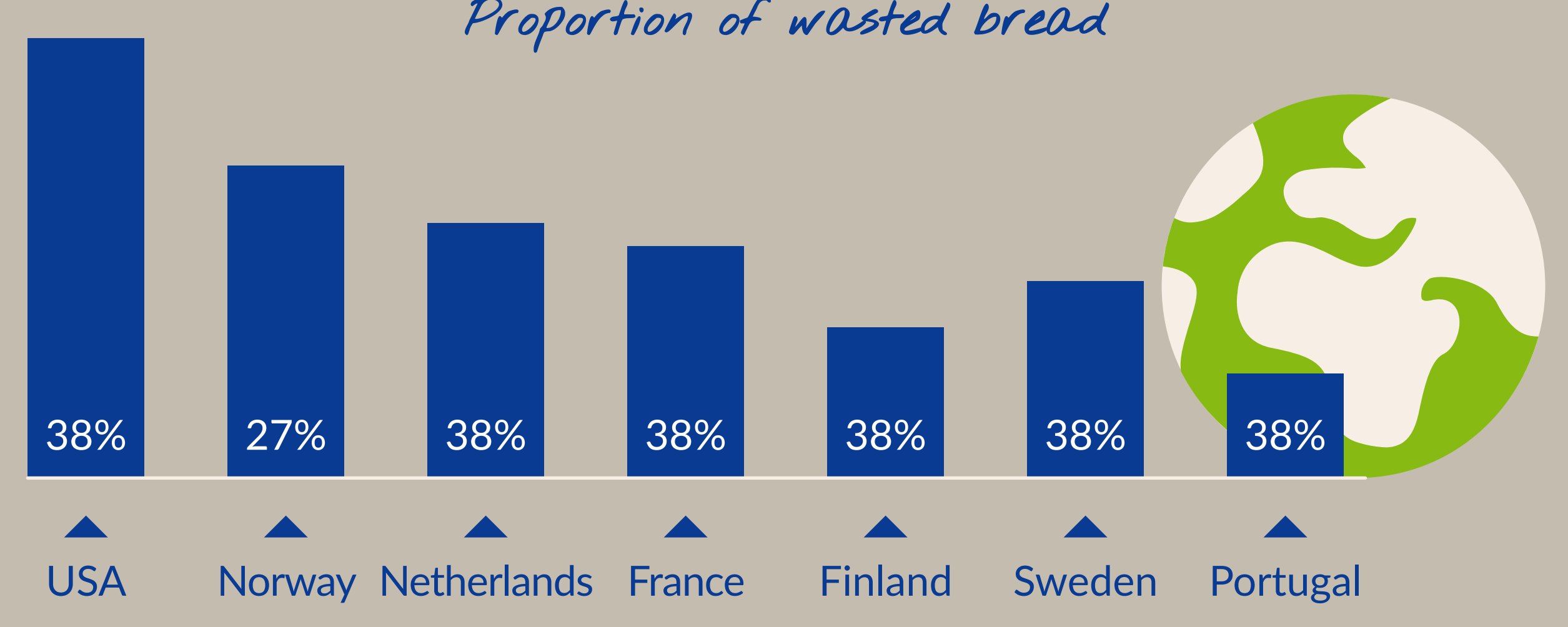
An unsuspected potential for innovation

The extent of bread waste

28 billion tons of wasted bread per year!

Bread waste is responsible for **13%** of all food waste.

The world's most wasted food (bread slices, bread rolls, baguettes, bread loaves, world breads)



A major challenge, especially in Europe and North America

Loss of bread occurs throughout the whole supply chain

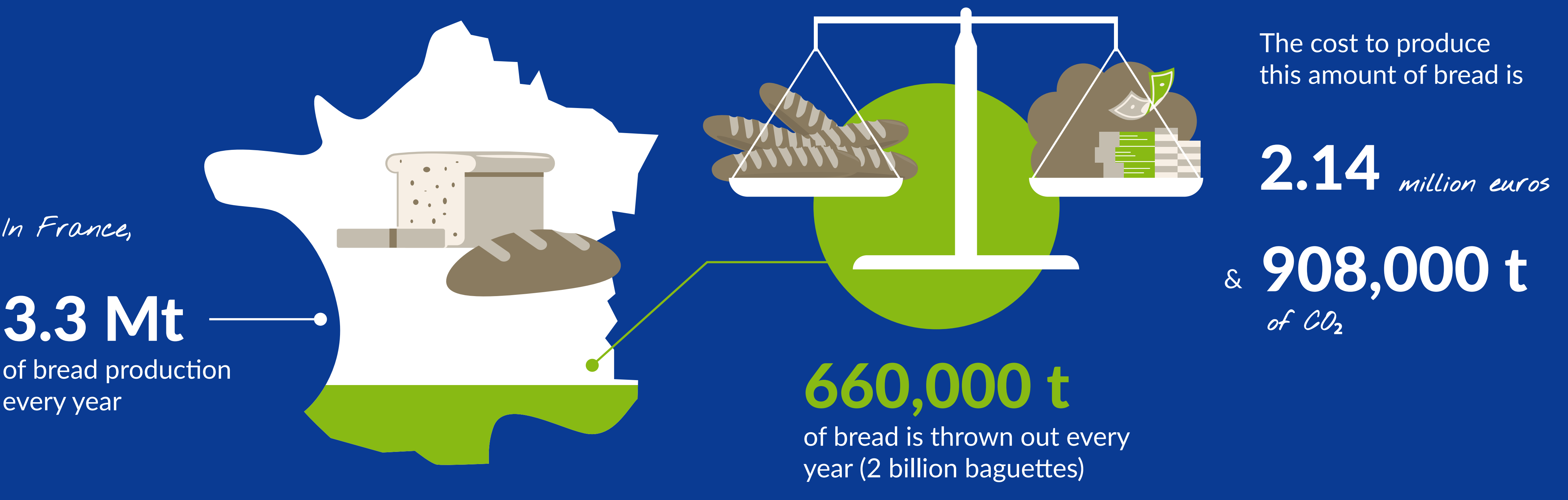


4 reasons for throwing away bread at home

- Out of date
- Look bad
- Staling
- Plate leftover
- Go mouldy

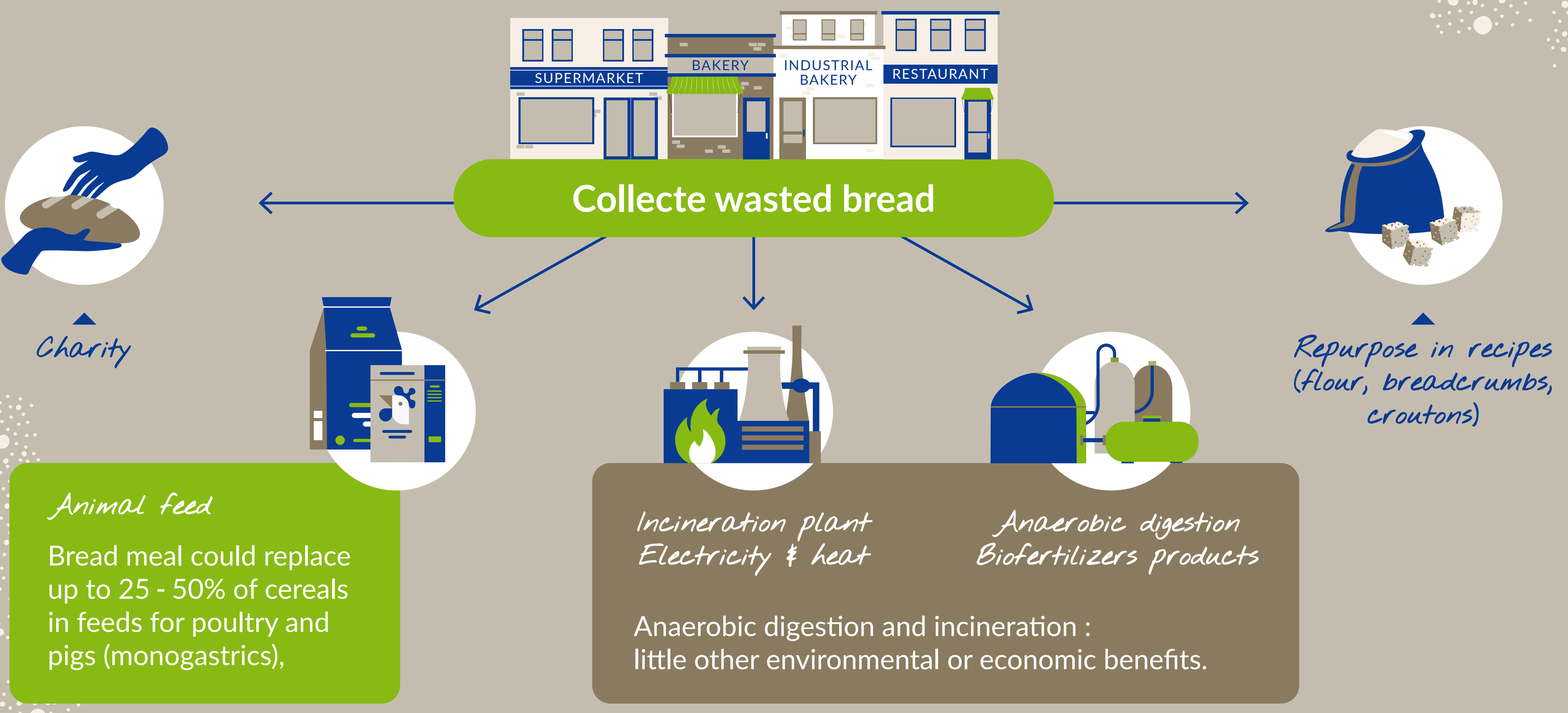
An environmental & economical cost

The example of France



Classical bread recycling

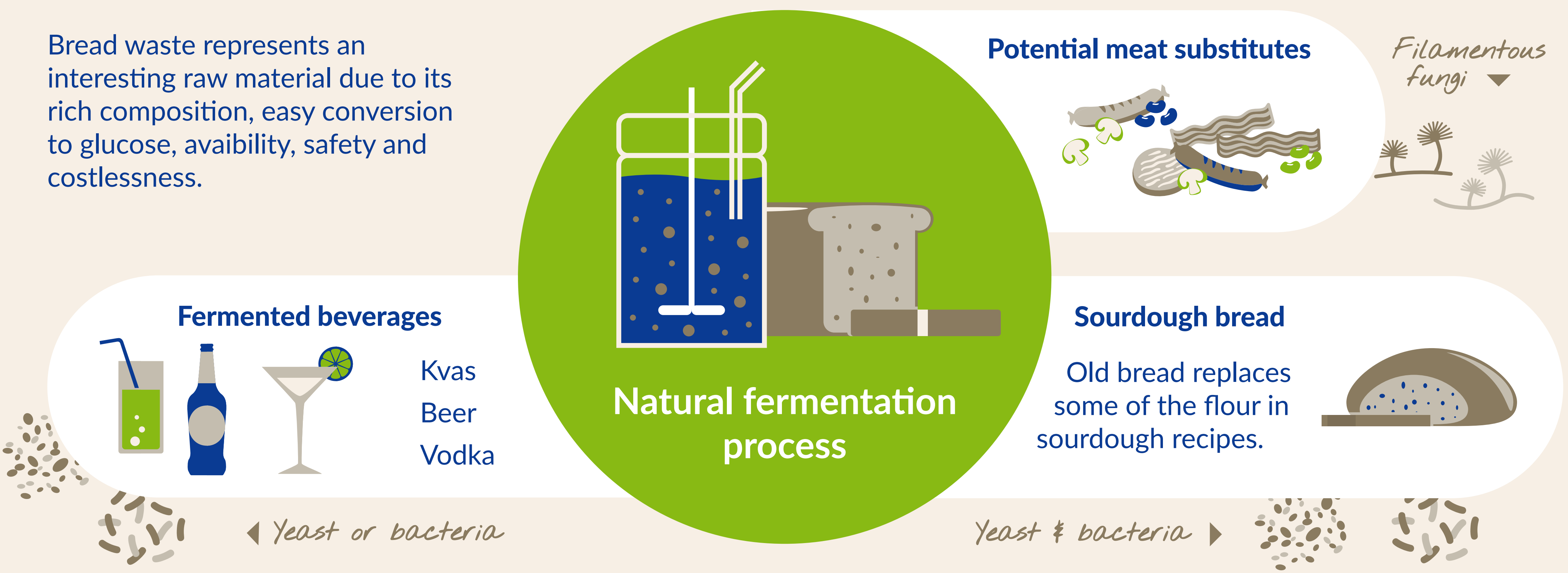
Recycling of bread waste within the food industry is limited due to the relatively short material lifetime, stringent process and hygiene requirements.



Turning bread into food & beverages

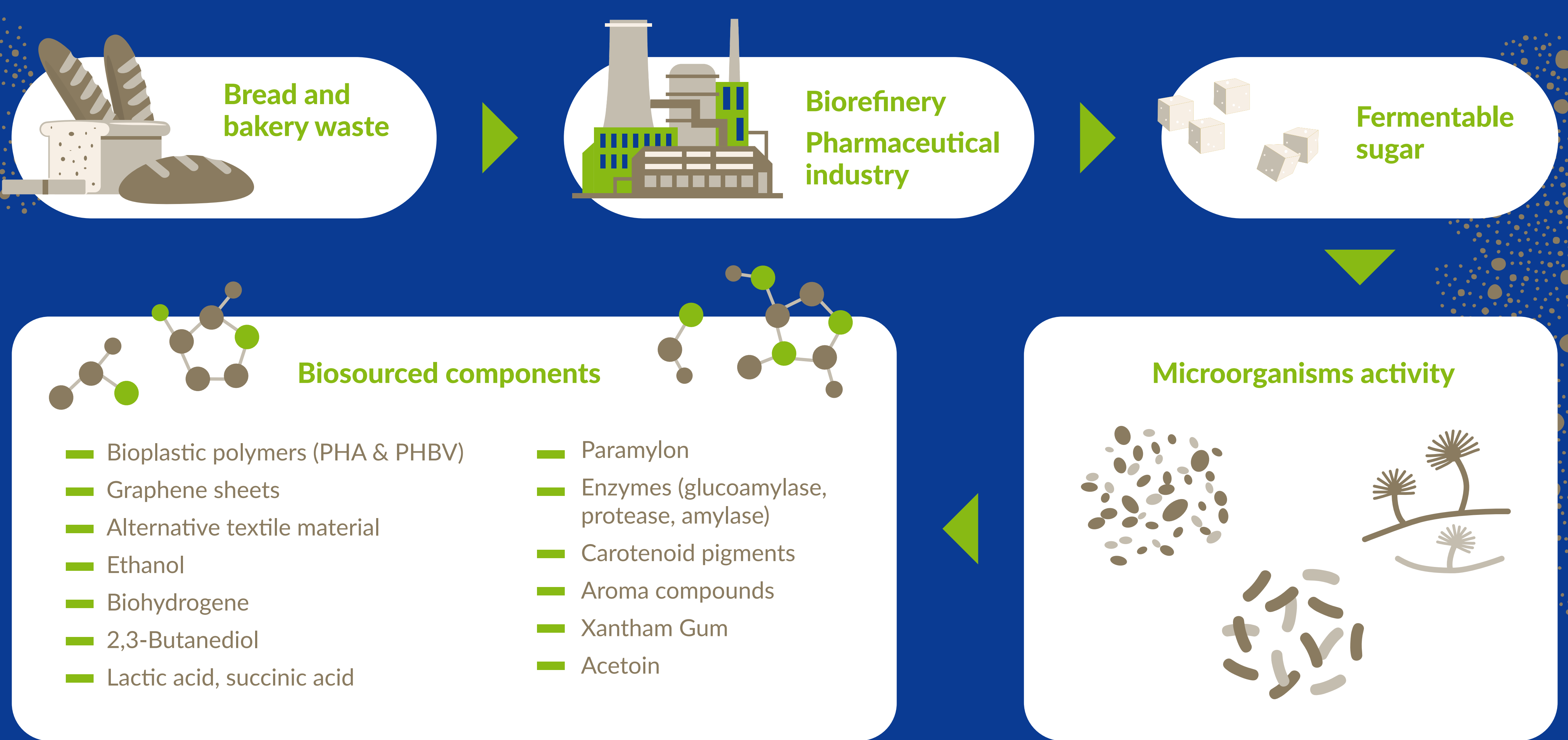
The power of fermentation

Bread waste represents an interesting raw material due to its rich composition, easy conversion to glucose, availability, safety and costlessness.



Potential of microorganisms for high value products

Bread can become vegan leather, bioplastic, pharmaceuticals or alternative energy



Potential applications of bread waste recycling into various high value added chemical components within fermentative means.

Bread waste is a good raw material for microorganisms such as bacteria, fungi and yeasts. Research has highlighted methods and technologies for unlocking the potential of bread in a circular economy approach.

Developing ways of converting bread waste into chemical building blocks would provide an immediate solution to the growing volumes of food waste associated with the world's growing population, and create a sustainable, safe and stable source of fuels and chemicals.

Today, the challenge lies in the logistics and supply chain for bread waste as a raw material for the value chain.