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Circularity Thinking *for New Product Development*

Eoin Bailey – UK Innovation Manager



MADE
MANUFACTURE
ADVANCED
DESIGN
ENGINEERING



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David



April 29th 2022

INNOVATION MANAGEMENT

Circular Economy

**An Economy
that is
Circular by nature!**

Strategic Design Solution
for
Restorative Economic Development
based on
Full Lifecycle Understanding

Multiple Value Streams

New Collaborative Strategies

New Business Models

New Service Opportunities

Increased Customer Satisfaction

Improved Brand Identity

Resource Efficiency

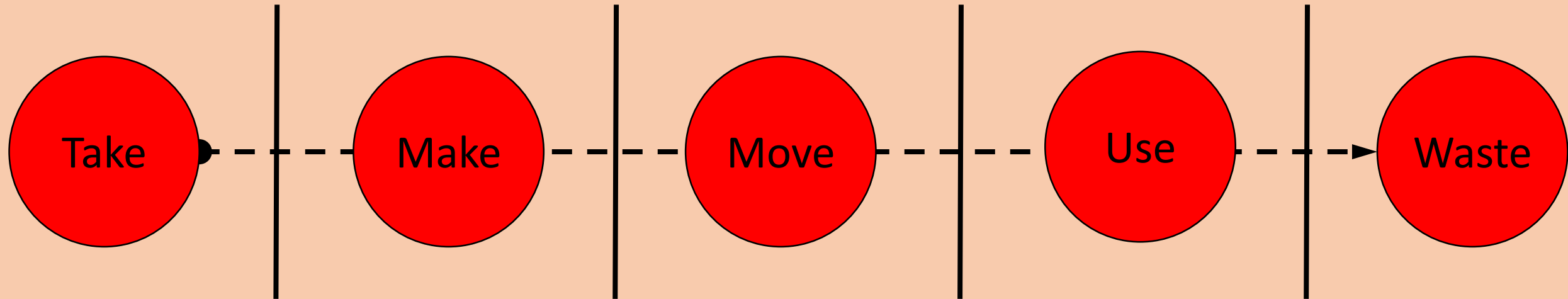
Risk Mitigation

Impact Elimination

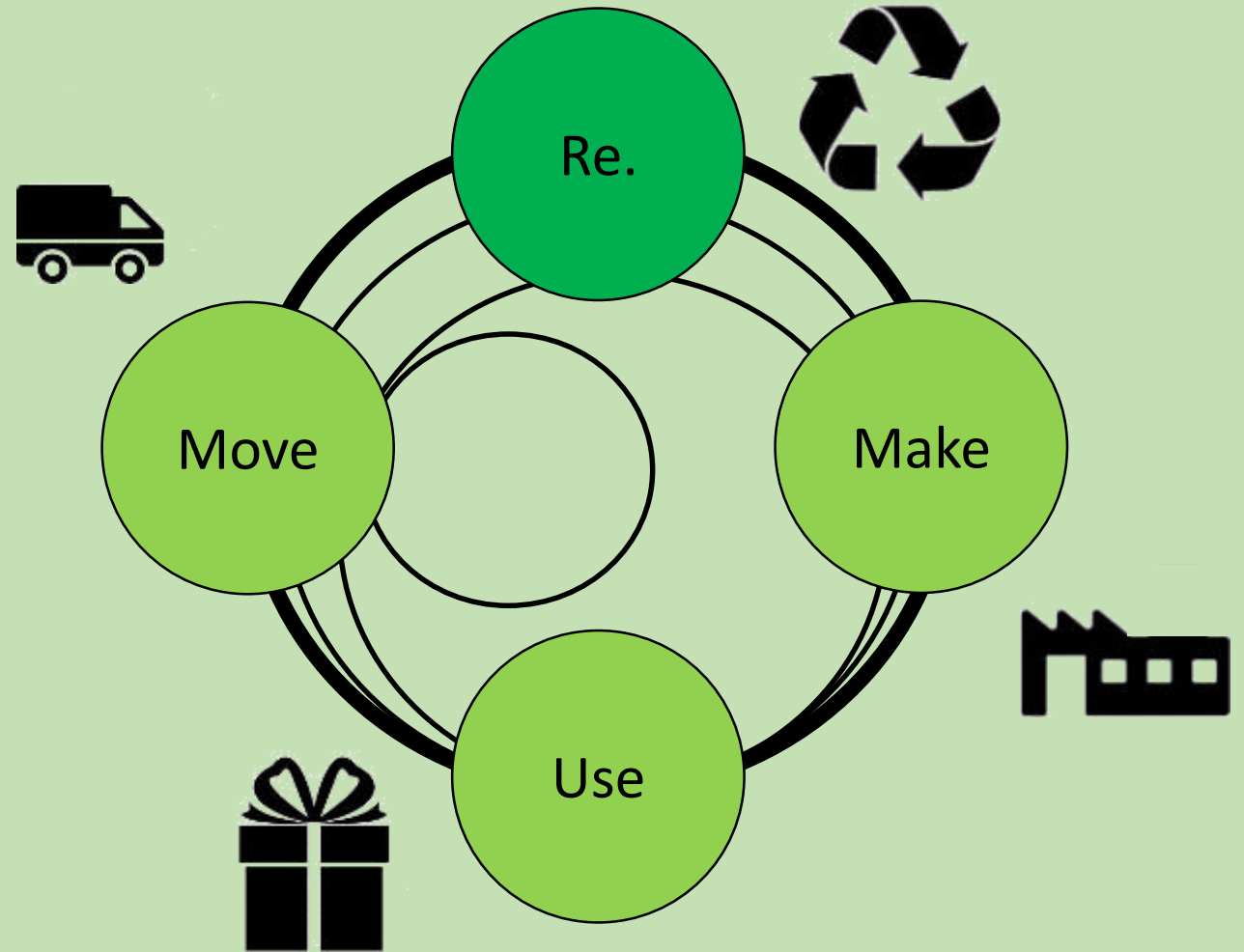
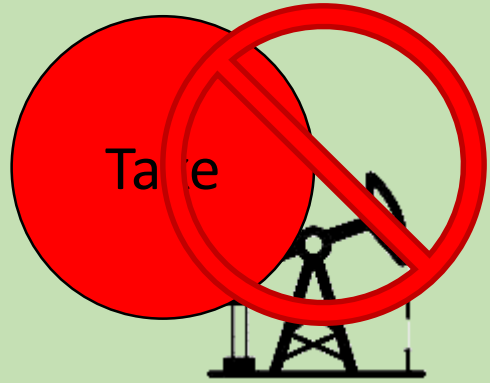
Sustainable Prosperity & Growth
fit for **Future Generations**



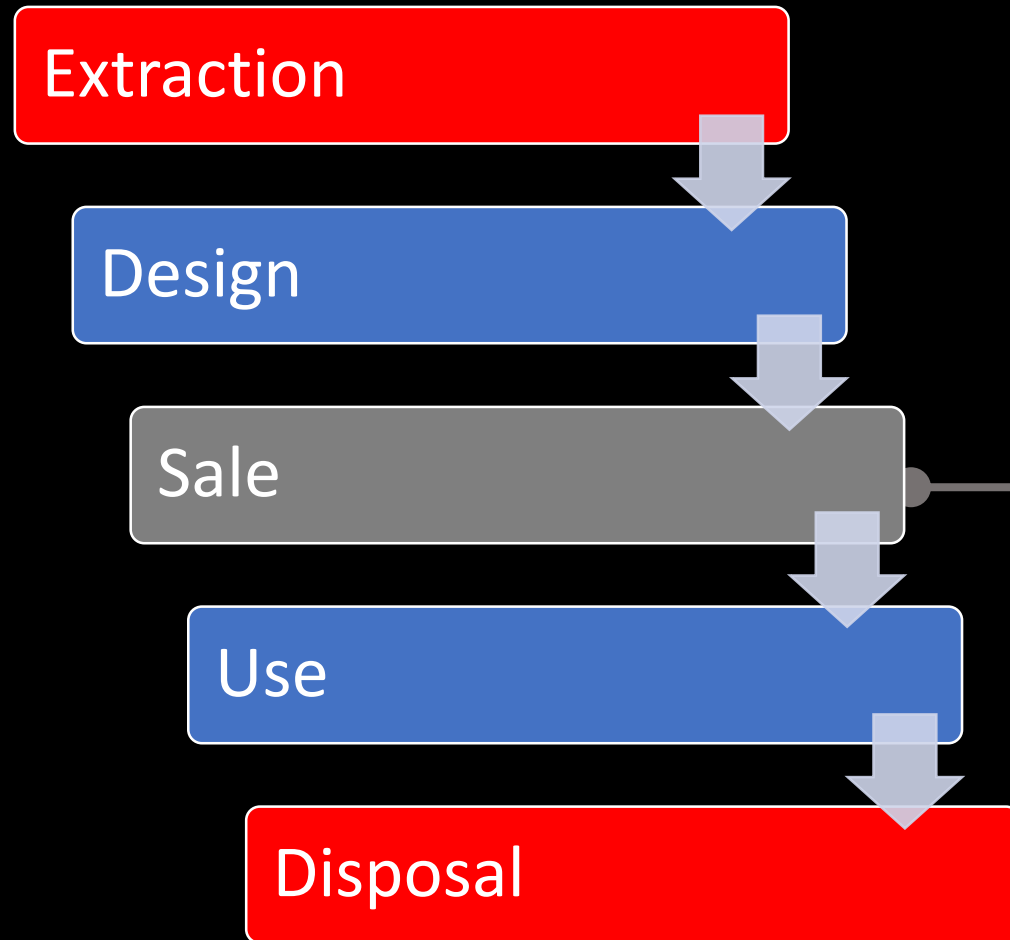
Current Linear Economy | Addiction



Future Circular Economy | Prosperity



Linear Economy | Single Profit opportunity



£ x 1

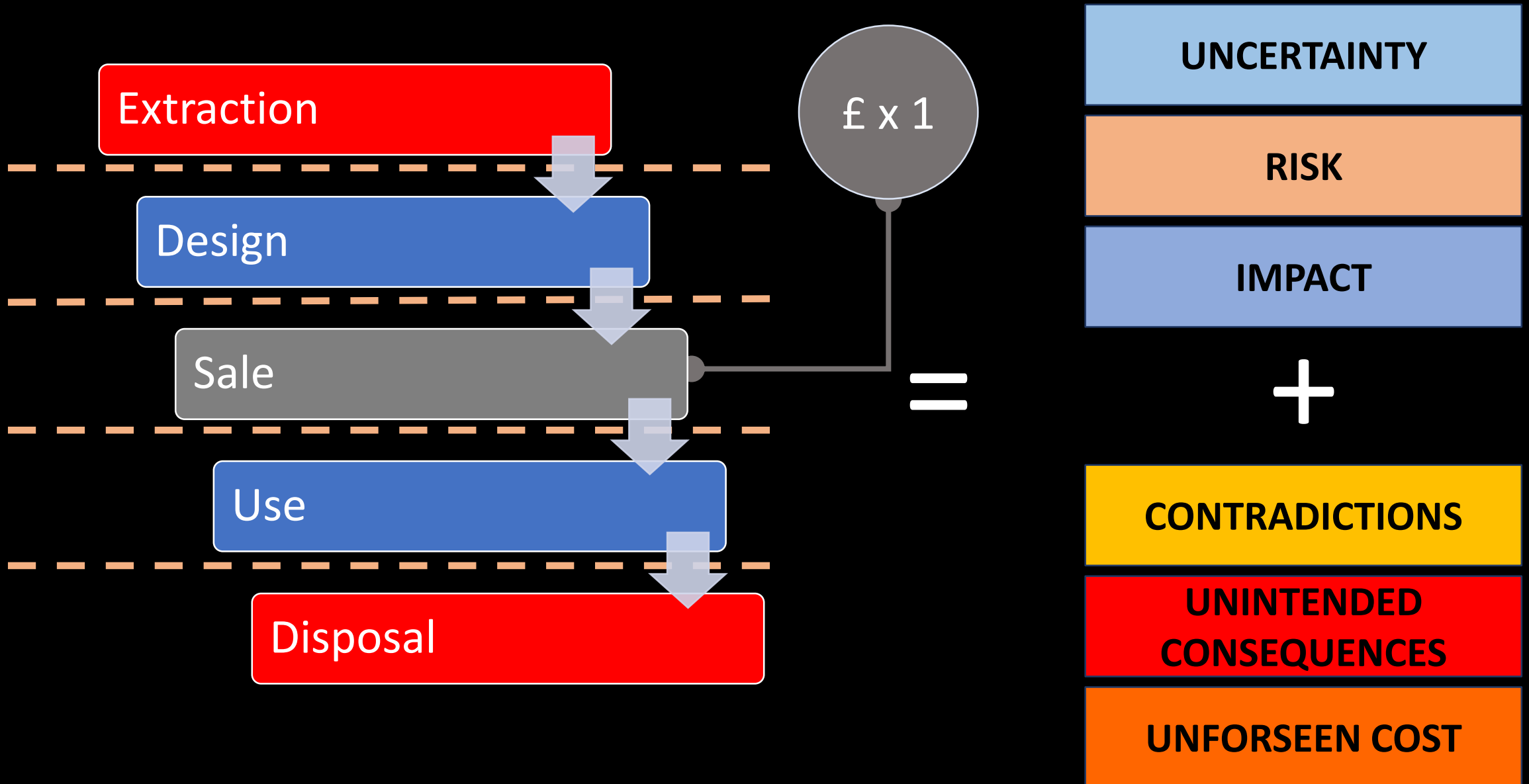


John Locke
IPR

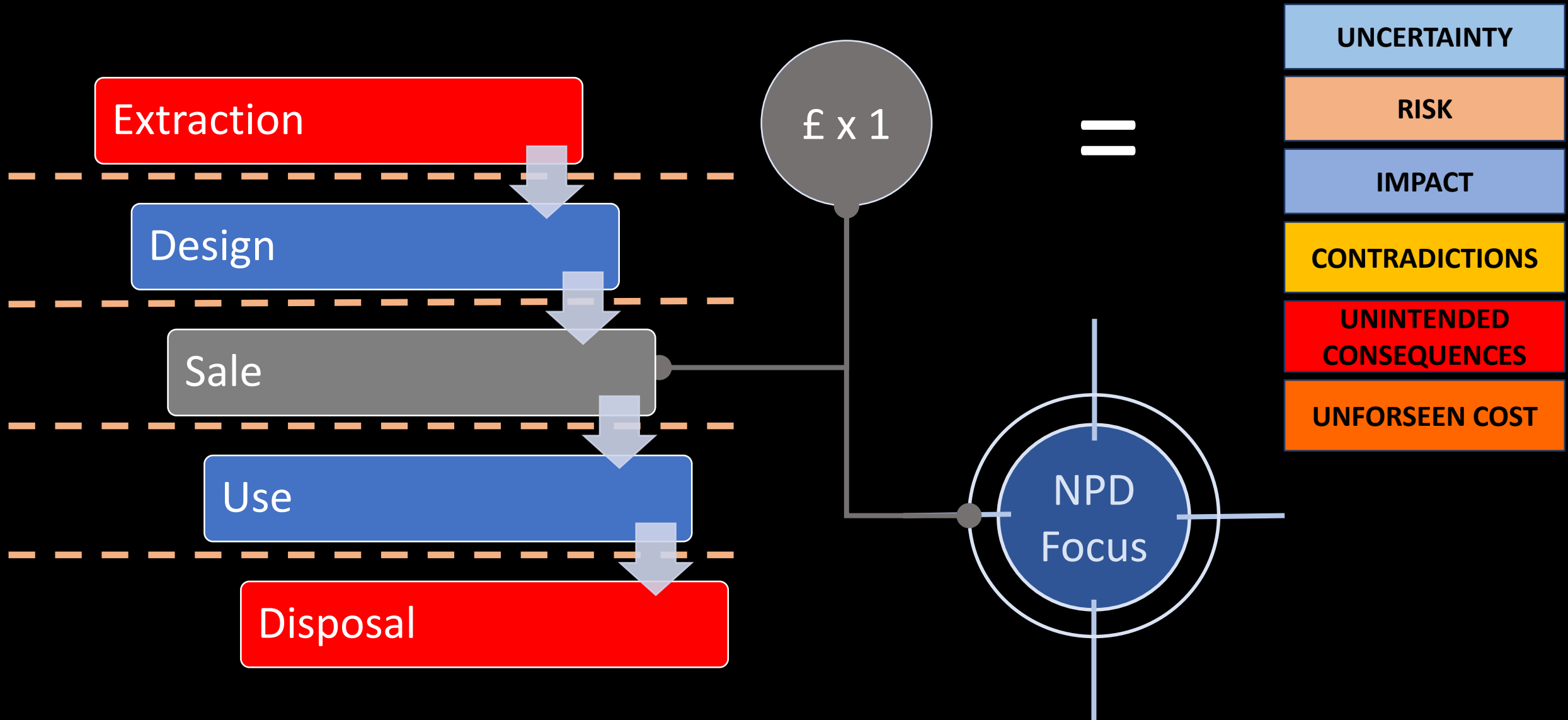
Material Flow →

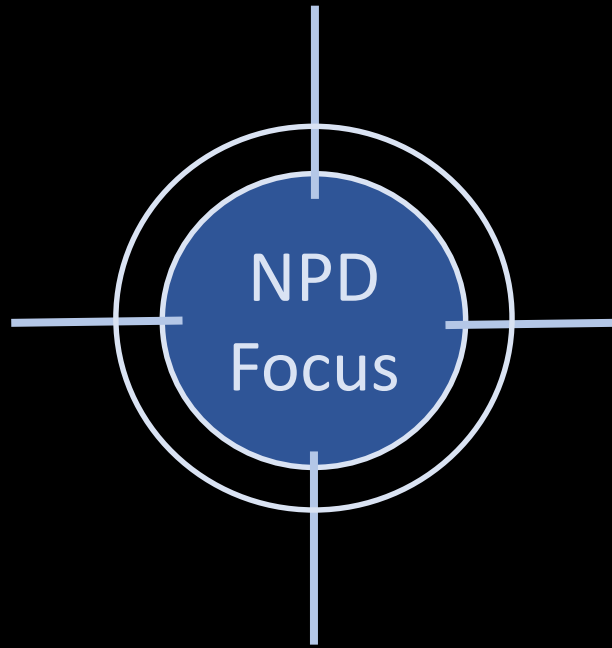
Assumed Value at Point of Sale

Linear Economy | Silo Working | Legacy Knowledge



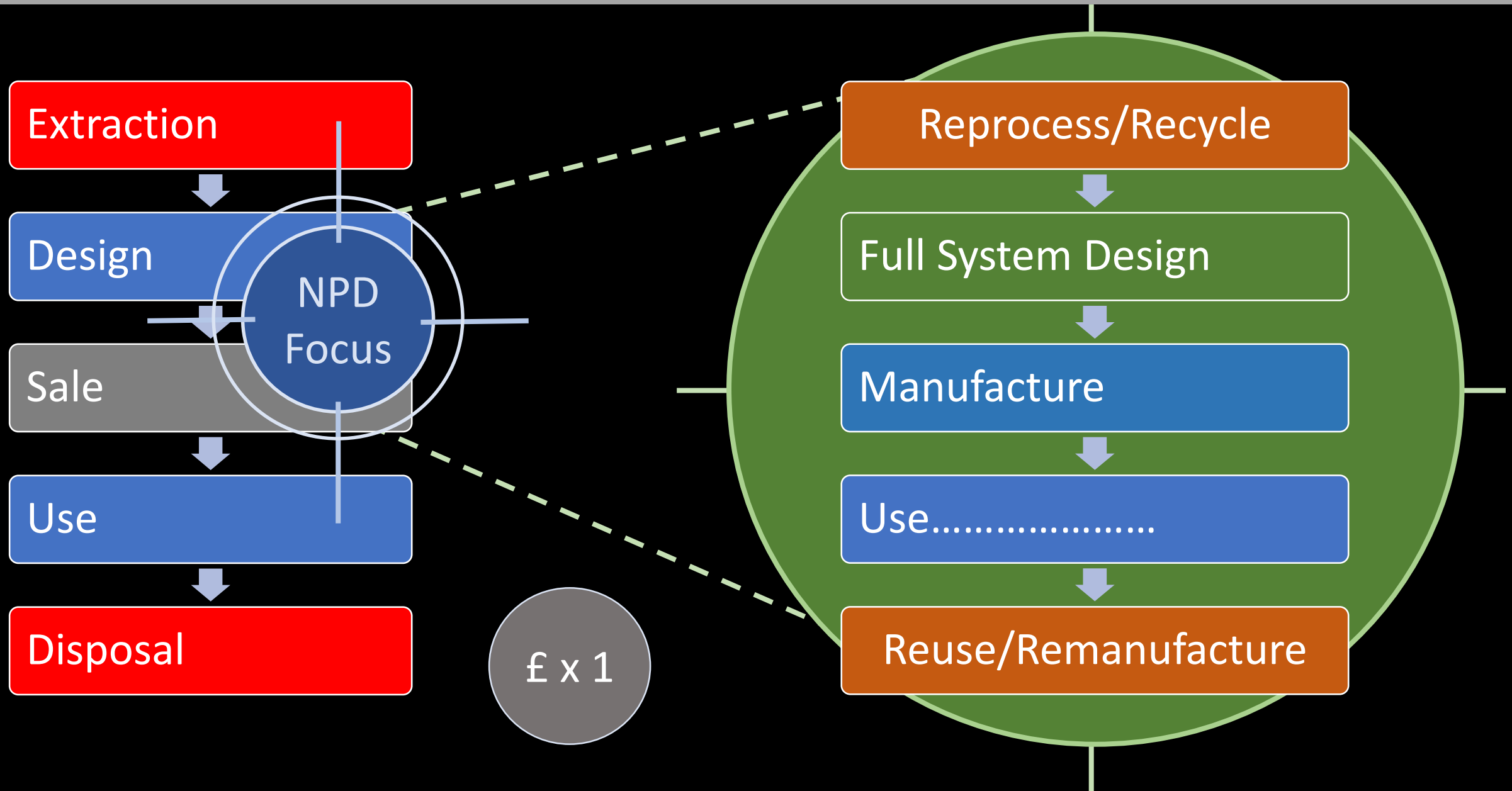
Linear Economy | Silo | Legacy | Design Based Decisions



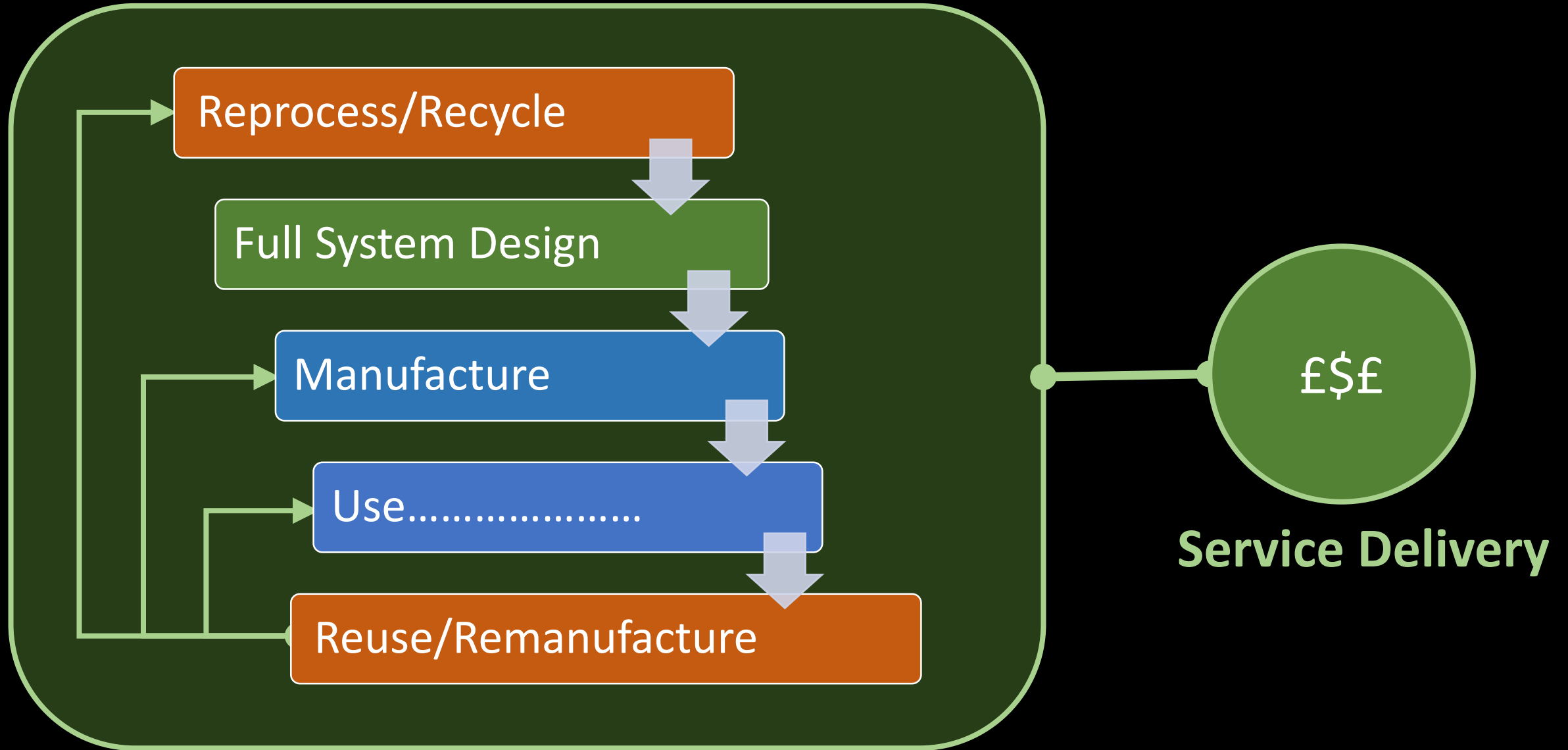


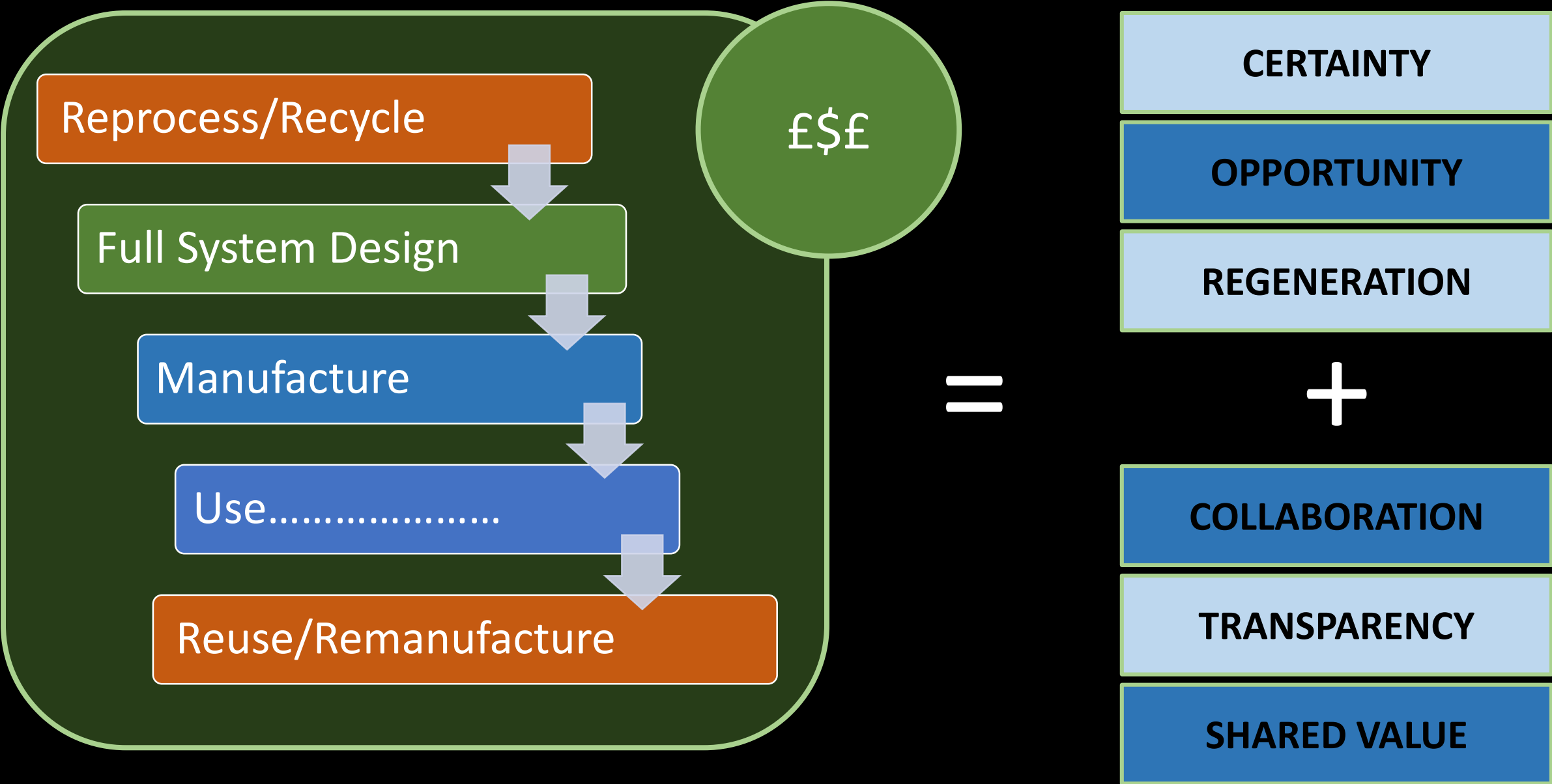
Decisions made at the design stage have a lifetime impact

Linear to Circularity | Use the Process | **Change the Scope**



Circular Economy | Multiple Profit opportunities





Circularity Scope

Design
Strategy

-

Restorative
Development

-

Full Lifecycle
Understanding

Value Streams

Collaborative Strategies

Business Models

Service Opportunities

Customer Satisfaction

Brand Identity

Resource Efficiency

Risk Mitigation

Impact Elimination

Prosperity & Growth

Future Generations

Full Lifecycle Understanding | Deep Dive | Ask Questions

Your Business:

Material Resourcing
Resource Efficiency
People Engagement

Your Supply Chain:

Customer Challenges
Suppliers or Strategic Partners
Policies, Directives & Standards

Your Lifecycle:

Lifecycle Impact
End-of-Life



Case Study

The background of the slide is a close-up photograph of a car's interior, specifically the red perforated leather of a steering wheel and a black Harman/Kardon speaker grille. The Harman logo is overlaid on the left side of the image.

HARMAN

harman/kardon

Lifecycle Analysis

Systems Analysis

Supply Chain Analysis

New Car Smell (VOC's)

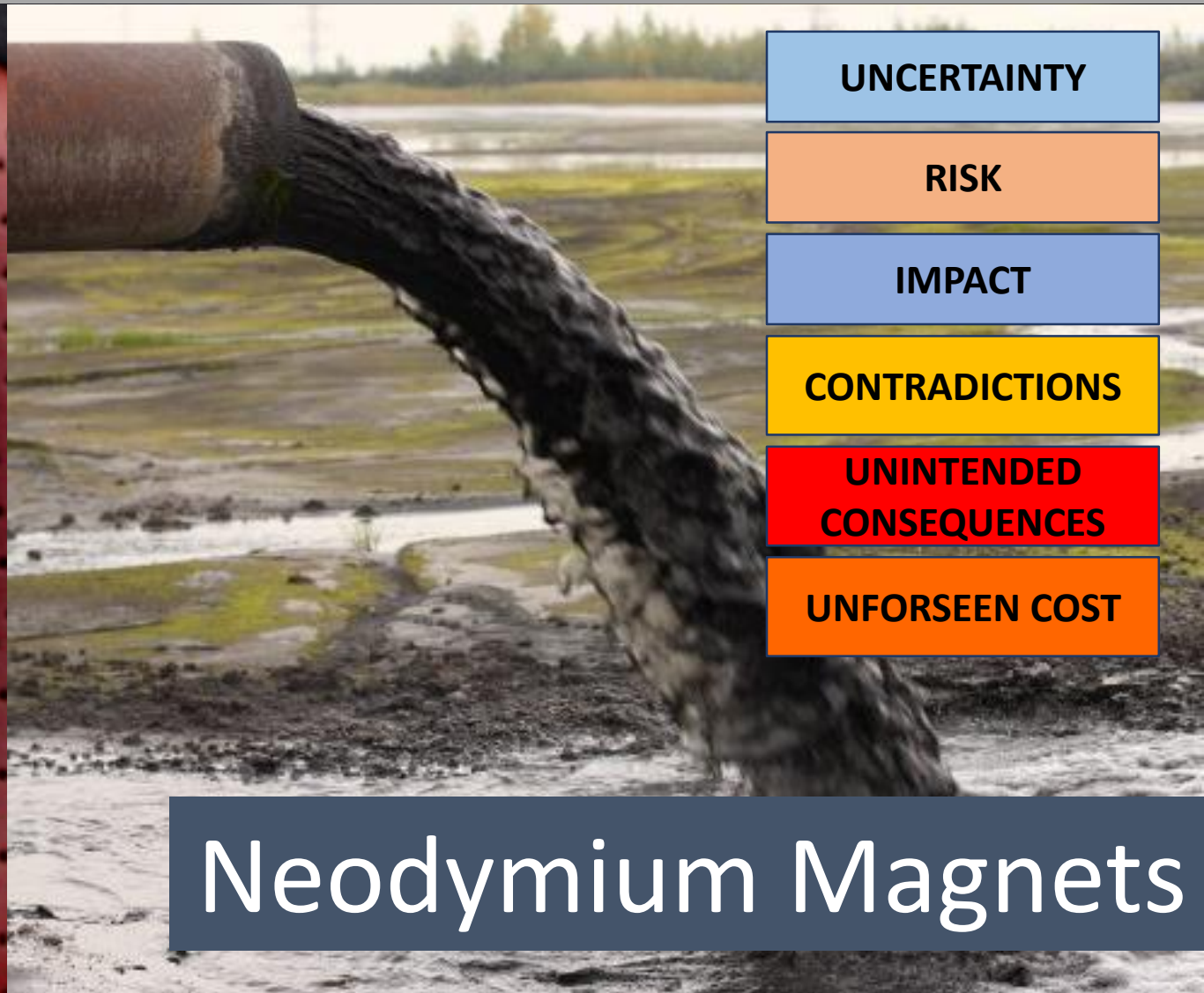
Neodymium Magnets

ELV Directive

Resource Management

Baseline of Lifecycle Understanding

Case Study



UNCERTAINTY

RISK

IMPACT

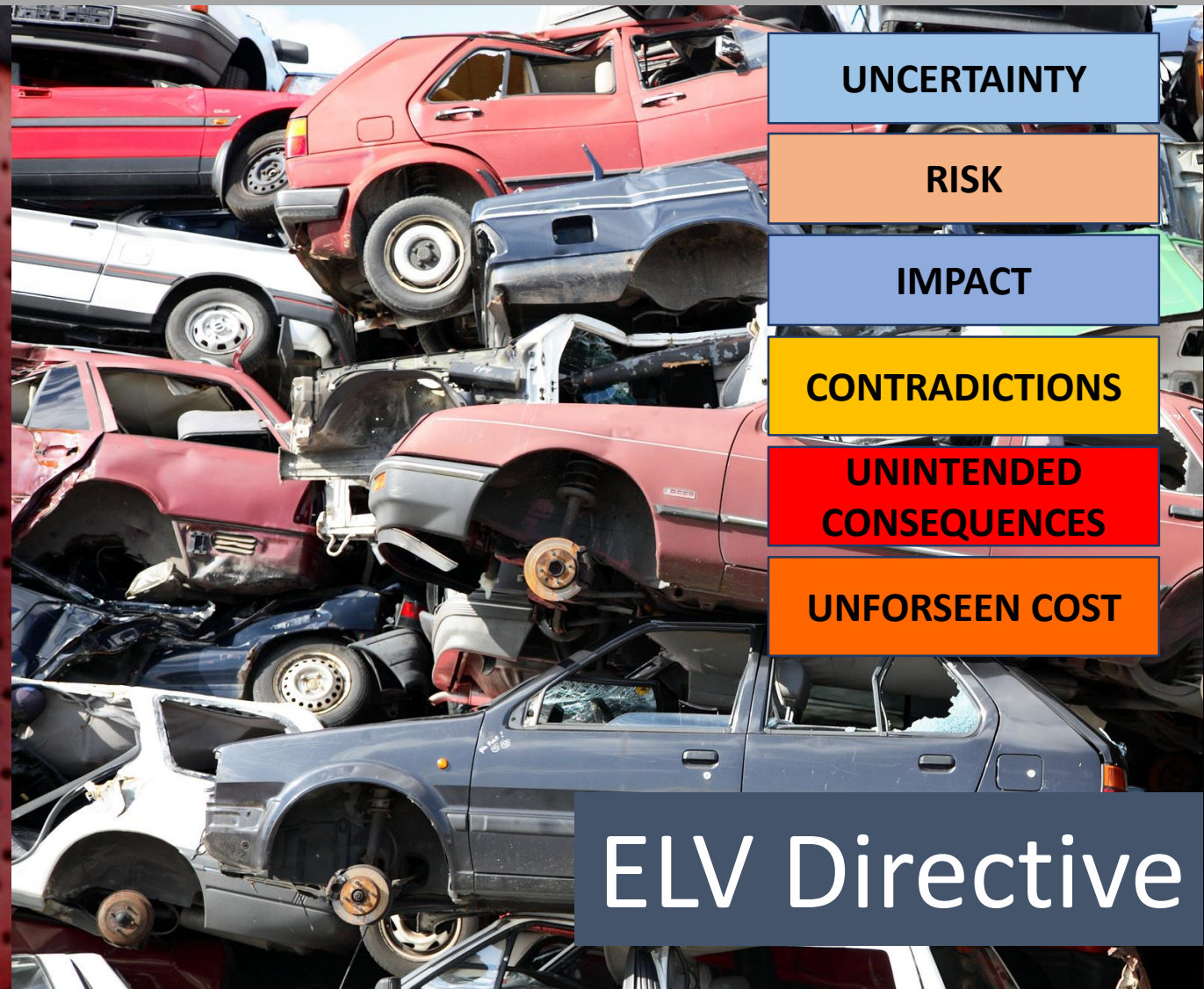
CONTRADICTIONS

**UNINTENDED
CONSEQUENCES**

UNFORSEEN COST

Monopoly Risk | Eco-Destruction | Social Devastation

Case Study



UNCERTAINTY

RISK

IMPACT

CONTRADICTIONS

UNINTENDED
CONSEQUENCES

UNFORSEEN COST

ELV Directive

Resource Loss | Underutilized Systems

Case Study



Resource Management

Resource Efficiency | Catalyst for Change

Celsa UK – Steel Recycling



Recycle | Resource Use | Economic Value

Down-cycle | Underutilized Resource | Minimum Value

Circularity Transition through Collaboration

Construction Scope 3 Reduction

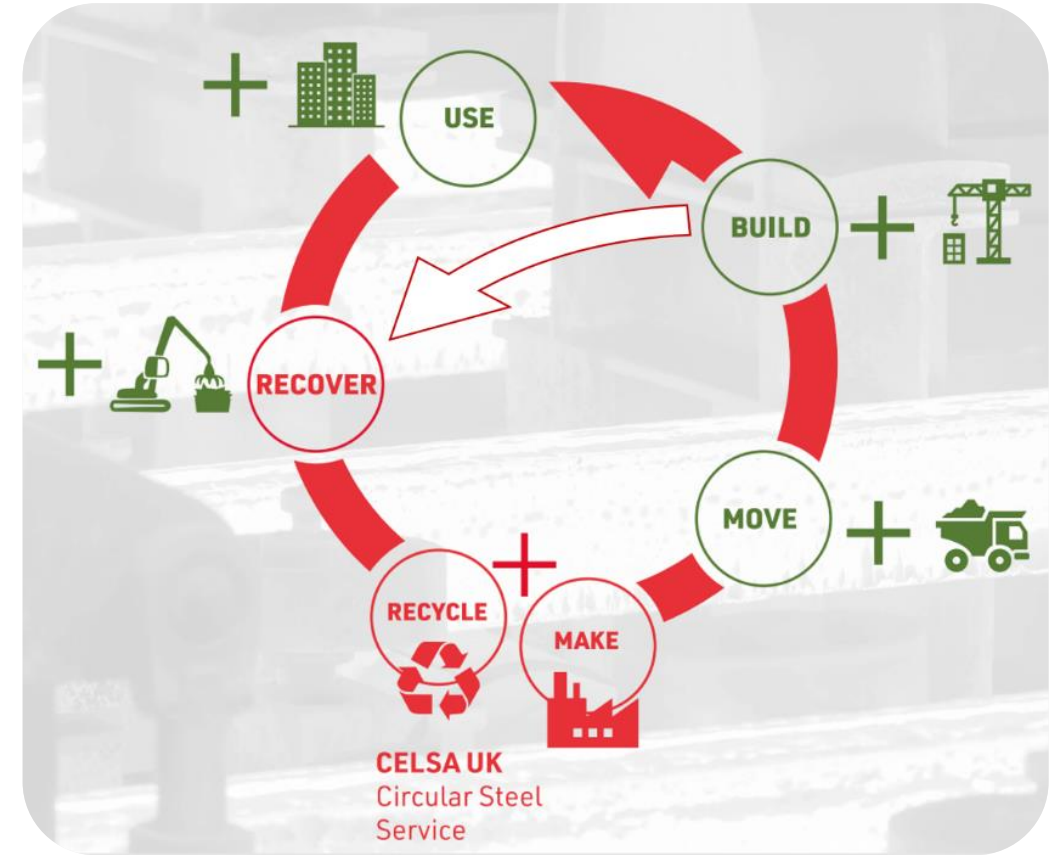
A platform for collaborative circularity that supports scrap resource efficiency and carbon reduction across the built environment supply chain.

CELSA Circular Steel

Embracing a sustainable future through collaboration

Voucher Scheme

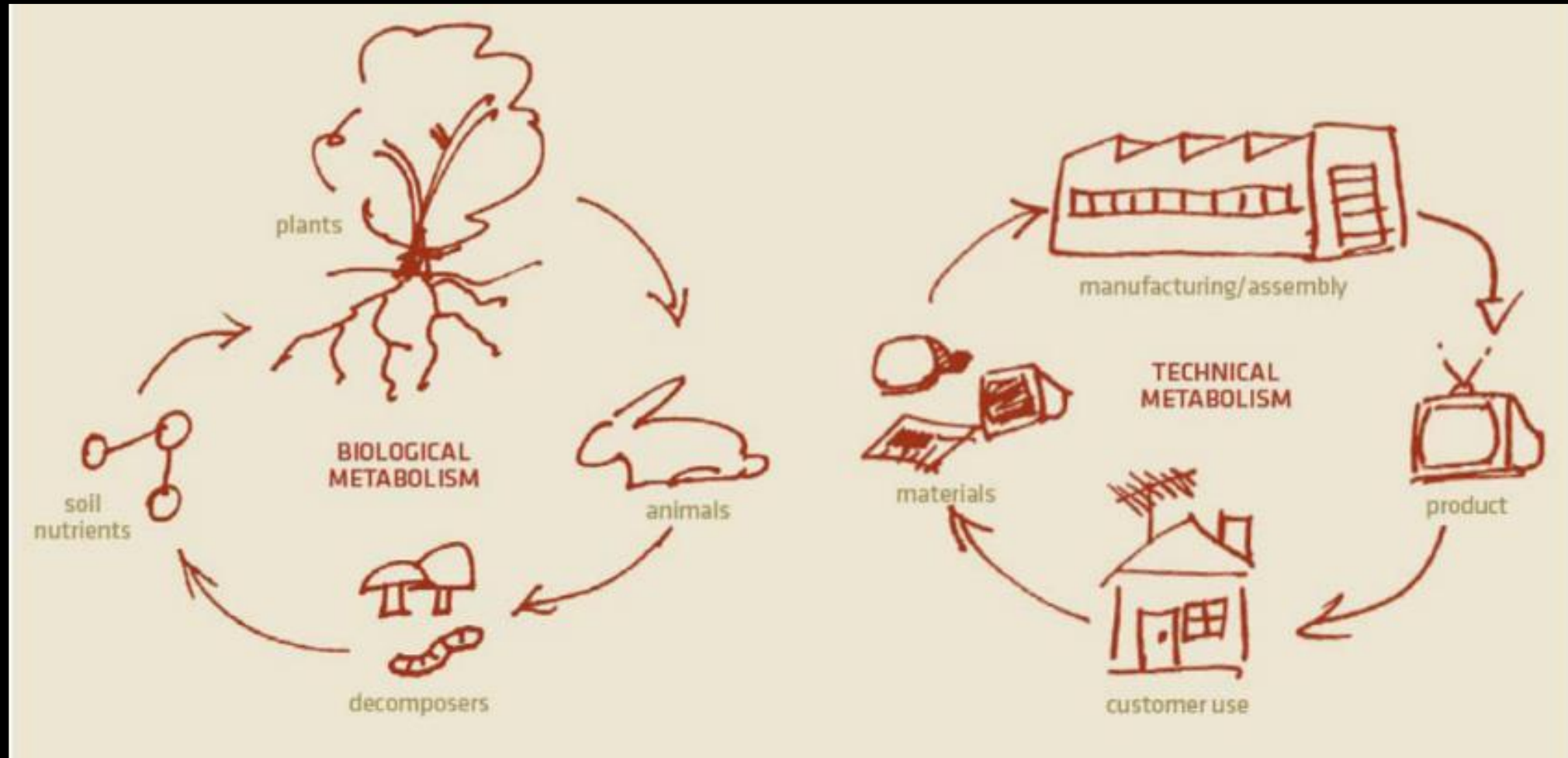
Voucher scheme



For information, please contact:
circularsteel@celsauk.com

Platform for Circularity

Mimicking Nature's Restorative Systems



Systems Thinking for New Development

Discussion:

NPD - form & function within a Circular Economy?



Discussion: **NPD - form & function within a Circular Economy?**

1. Systems Thinking

- Understanding the system-wide impacts and opportunities

2. Innovation

- Rethinking and utilising our business management as lens for value creation

3. Collaboration

- Securing system-wide benefits by cooperating with lifecycle stakeholders

4. Stewardship

- Taking responsibility for our actions, while protecting and advancing our industry

5. Optimisation

- Keeping materials at their highest level of value

6. Transparency

- Being honest and open about circular benefits and barriers



ALWAYS THINK LIFECYCLE

Because stuff doesn't disappear

WASTE is BAD DESIGN

So redesign the entire system

COLLABORATION is KEY

Circularity is a team sport

Thank You Questions Welcome