



**CLIMATE ACTION  
ECONOMIC OPPORTUNITIES**  
Local Authorities Supporting Enterprise

**Conference**

Tullamore Court Hotel  
Wednesday 26th April 2023 | 9:30 - 4:00

# Business Models for Local Climate Action

**Prof. John Cullen**  
**Maynooth University School of Business**  
**Co-PI Sustainable Futures**



**Sustainable Futures**





ERI @eriucc · Nov 10

New research from @UCC @eriucc @MaREIcentre @SEFSUCC points to a

The research points to a concerning lack of suitable skills among Irish businesses for sustainable transformation.

About seven in ten (69%) do not have someone developing and implementing a sustainable strategy. A proportion (69%) do not have someone to address environmental sustainability priorities.

Businesses 'underprepared' for net zero transition  
Irish businesses are significantly underprepared when it comes to making the transformative changes required to transition to a net zero...

Skillnet,  
IRELAND



Talent for  
Ireland's Green  
Economy  
2022

Examining Skill Needs to Support  
Enterprise Innovation and Ireland's  
Transition to a Low-Carbon Economy



- 10 EU Level Policies
- 11 National Policies
- *Identifying 6 key opportunities at EU and National Level*
- 32 Local Authority level documents
- *Identifying 9 key opportunities at Local Authority level*



- 49 respondents to a 50 item questionnaire
- *High levels of awareness of climate action and possibility of enterprise and employment opportunities*





# **Policy Overwhelm**

# Climate Change Enters the Therapy Room

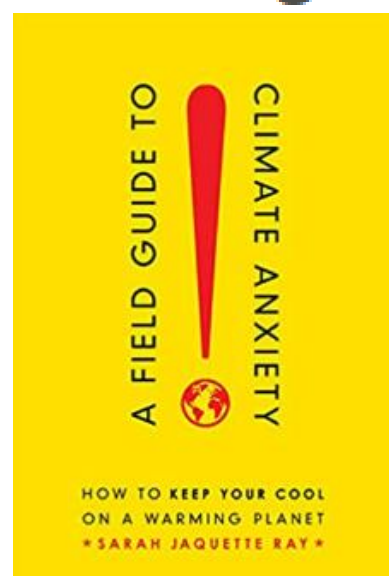
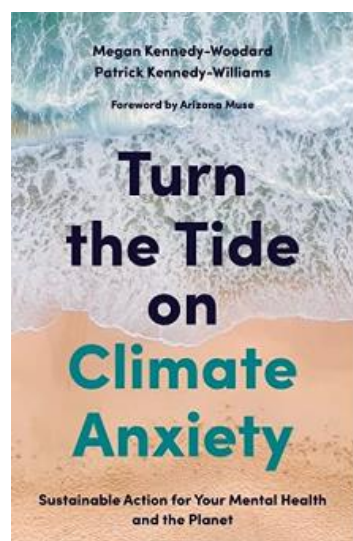
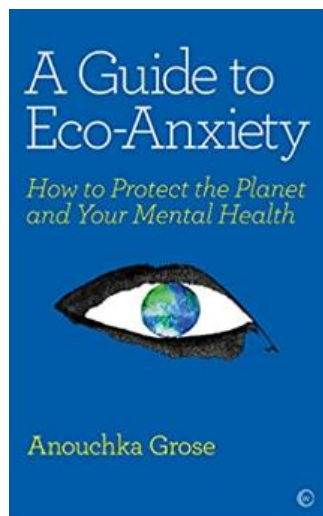
Ten years ago, psychologists proposed that a wide range of people would suffer anxiety and grief over climate. Skepticism about that idea is gone.

**BBC** FAMILY TREE | PSYCHOLOGY

## How can we help kids cope with 'eco-anxiety'?

By Josie Glausiusz 22nd April 2022

More and more children are experiencing "eco-anxiety": a chronic fear of environmental doom. But some are converting their panic into a force for good.



Thinking about the climate crisis can be overwhelming. Here are ways to handle it.

# spunout

## How to handle climate anxiety

Thinking about the climate crisis can be overwhelming. Here are ways to handle it.

William Reville  
Thu Aug 18 2022 - 05:52

## Climate anxiety can stop people vigorously tackling global warming

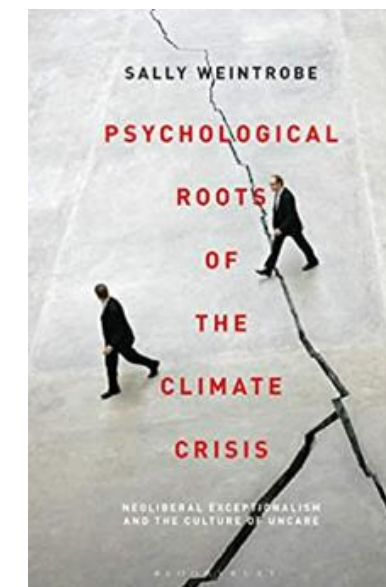
We should support politicians who pursue climate action and punish them electorally if they fail to act

## The climate crisis and the rise of eco-anxiety

October 6, 2021



Levels of eco-anxiety are growing, particularly among children and young people, and are likely to be significant and potentially damaging to individuals and society, warn Mala Rao and Richard A Powell



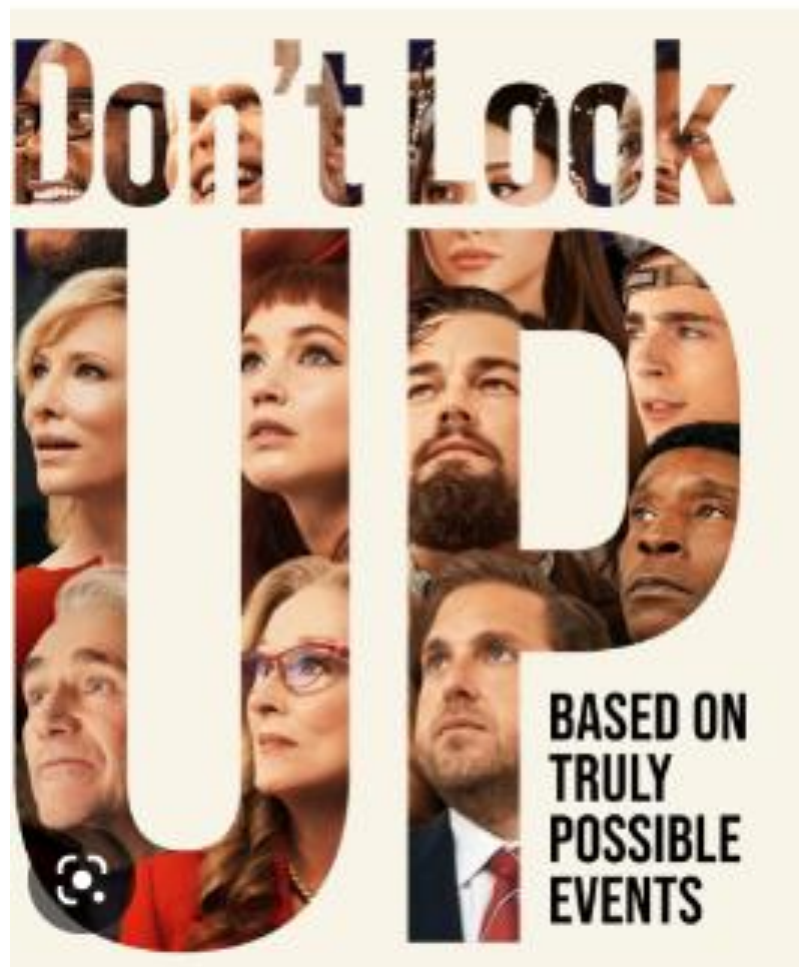
Moya Sarnier

Tue 12 Apr 2022 06.00 BST

## 'I was enjoying a life that was ruining the world': can therapy treat climate anxiety?



'Until a few years ago, I felt invincible' ... Pete Knapp. Photograph: David Levene/The Guardian  
People are increasingly looking for help to deal with feelings of fear, helplessness and guilt amid the climate crisis. But can therapists make a difference and is seeking treatment just a form of denial?



The long read

## Why Silicon Valley billionaires are prepping for the apocalypse in New Zealand

Photograph: Johan Lolos/Rex/Shutterstock

### Billionaire Peter Thiel refused consent for sprawling lodge in New Zealand

Local council decides proposed bunker-like home would negatively impact surrounding landscape

Tess McClure

@tessairini

Thu 18 Aug 2022 18.02 BST



Thiel - an outspoken libertarian and early Facebook investor - is one of a [number of super-rich speculators](#) who began buying up remote boltholes in New Zealand, in preparation for apocalyptic social, political or environmental disintegration. He had previously discussed flying out to the country as a backup plan in the event of a pandemic, or global societal collapse, [his friend the entrepreneur Sam Altman](#) told the New Yorker in 2016.



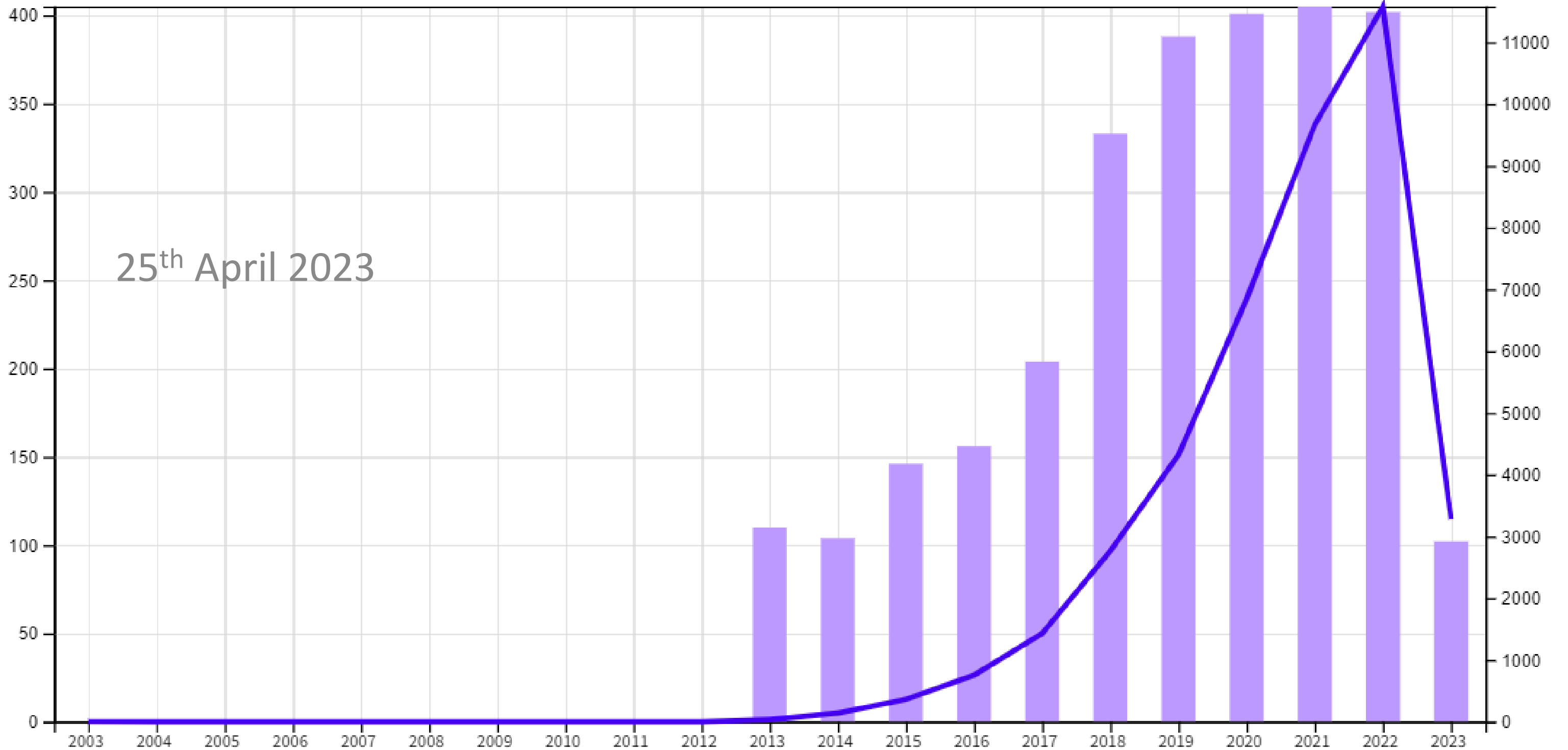
## Find your nearest climate strike for this Friday

Young people around the country will call on the government to act on the climate crisis

Written by [spunout](#)

**Factsheet**  
Fact checked by experts and reviewed by young people.





25<sup>th</sup> April 2023

Publications Citations

Sustainab\* and Business\* WOS Title Search (25<sup>th</sup> April 2023)



# Framing the Elusive Concept of Sustainability: A Sustainability Hierarchy

JULIAN D. MARSHALL  
MICHAEL W. TOFFEL

The failure of any organization or institution to acquire a legitimate leadership role over the issues discussed at the Earth Summit has resulted in a plethora of organizations offering their own sustainability definitions and metrics (5). By the mid-1990s, there were well over 100 definitions of sustainability (6). This definitional chaos has nearly rendered the term *sustainability* meaningless and is distracting from the need to address ongoing environmental degradation.

# Institutional isomorphism:

- **Coercive processes**
  - Political and governance forces
- **Mimetic processes**
  - Standard responses to uncertainty
- **Normative processes**
  - From professionalization

## THE IRON CAGE REVISITED: INSTITUTIONAL ISOMORPHISM AND COLLECTIVE RATIONALITY IN ORGANIZATIONAL FIELDS\*

PAUL J. DIMAGGIO      WALTER W. POWELL  
*Yale University*

*What makes organizations so similar? We contend that the engine of rationalization and bureaucratization has moved from the competitive marketplace to the state and the professions. Once a set of organizations emerges as a field, a paradox arises: rational actors make their organizations increasingly similar as they try to change them. We describe three isomorphic processes—coercive, mimetic, and normative—leading to this outcome. We then specify hypotheses about the impact of resource centralization and dependency, goal ambiguity and technical uncertainty, and professionalization and structuration on isomorphic change. Finally, we suggest implications for theories of organizations and social change.*

In *The Protestant Ethic and the Spirit of Capitalism*, Max Weber warned that the rationalist spirit ushered in by asceticism had achieved a momentum of its own and that, under capitalism, the rationalist order had become an iron cage in which humanity was, save for the possibility of prophetic revival, imprisoned “perhaps until the last ton of fossilized coal is burnt” (Weber, 1952:181–82). In his essay on bureaucracy, Weber returned to this theme, contending that bureaucracy, the rational spirit’s organizational manifestation, was so efficient and powerful a means of controlling men and women that, once established, the momentum of bureaucratization was irreversible (Weber, 1968).

The imagery of the iron cage has haunted students of society as the tempo of bureaucratization has quickened. But while bureaucracy has spread continuously in the eighty years since Weber wrote, we suggest that the engine of organizational rationalization has shifted. For Weber, bureaucratization resulted from three related causes: competition among

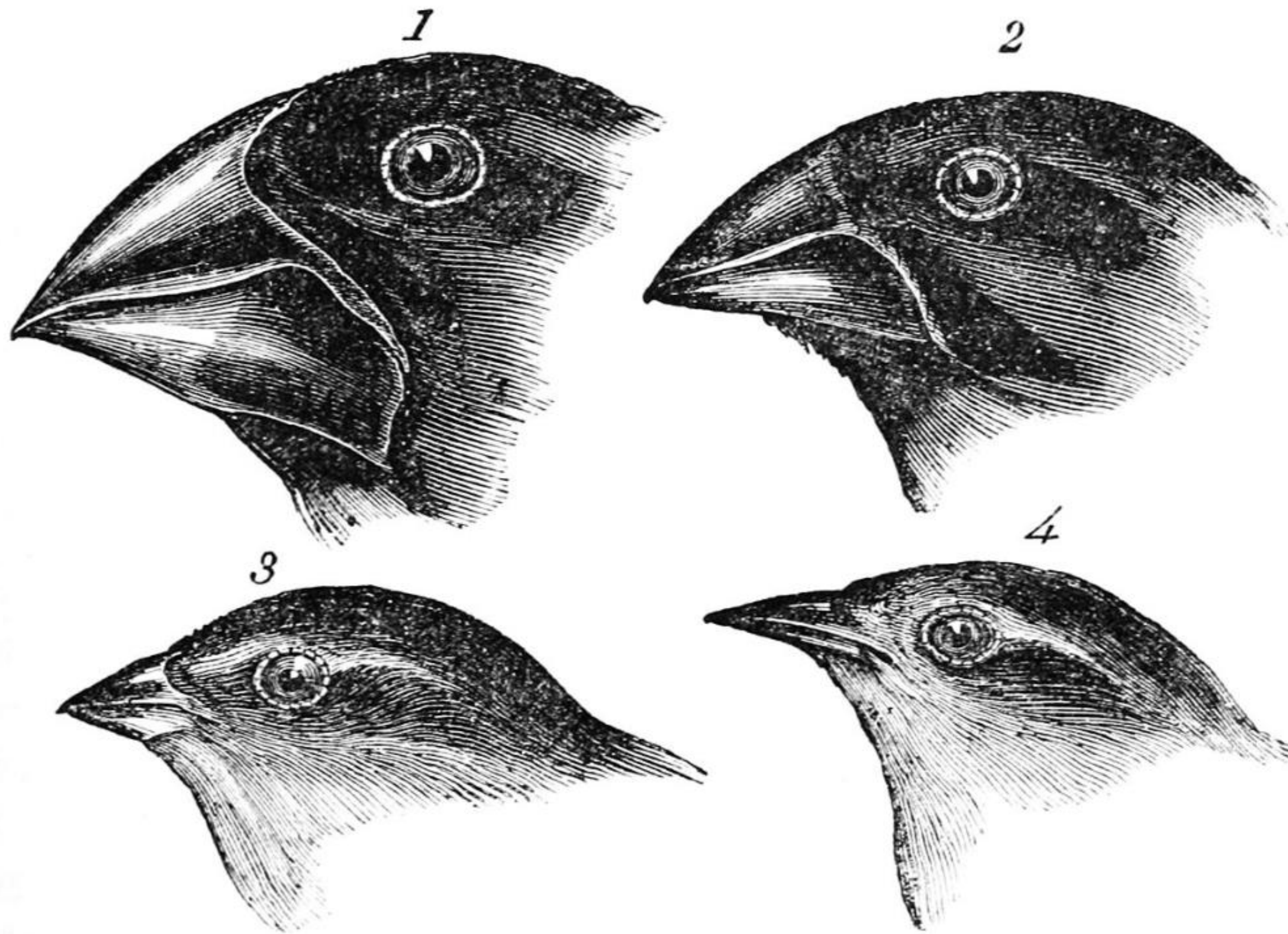
capitalist firms in the marketplace; competition among states, increasing rulers’ need to control their staff and citizenry; and bourgeois demands for equal protection under the law. Of these three, the most important was the competitive marketplace. “Today,” Weber (1968:974) wrote:

it is primarily the capitalist market economy which demands that the official business of administration be discharged precisely, unambiguously, continuously, and with as much speed as possible. Normally, the very large, modern capitalist enterprises are themselves unequalled models of strict bureaucratic organization.

We argue that the causes of bureaucratization and rationalization have changed. The bureaucratization of the corporation and the state have been achieved. Organizations are still becoming more homogeneous, and bureaucracy remains the common organizational form. Today, however, structural change in organizations seems less and less driven by competition or by the need for efficiency. Instead, we will contend, bureaucratization and other forms of organizational change occur as the result of processes that make organizations more similar without necessarily making them more efficient. Bureaucratization and other forms of homogenization emerge, we argue, out of the structuration (Giddens, 1979) of organizational fields. This process, in turn, is effected largely by the state and the professions, which have become the great rationalizers of the second half of the twentieth century. For reasons that we will explain, highly structured organizational fields provide a context in which individual efforts to deal rationally with uncertainty and constraint often lead, in the aggregate, to homogeneity in structure, culture, and output.

\*Direct all correspondence to: Paul J. DiMaggio and Walter W. Powell, School of Organization and Management, Yale University, Box 1A, New Haven, CT 06520.

A preliminary version of this paper was presented by Powell at the American Sociological Association meetings in Toronto, August 1981. We have benefited considerably from careful readings of earlier drafts by Dan Chambliss, Randall Collins, Lewis Coser, Rebecca Friedkin, Connie Gersick, Albert Hunter, Rosabeth Moss Kanter, Charles E. Lindblom, John Meyer, David Morgan, Susan Olzak, Charles Perrow, Richard A. Peterson, Arthur Stinchcombe, Blair Wheaton, and two anonymous ASR reviewers. The authors’ names are listed in alphabetical order for convenience. This was a fully collaborative effort.



1. *Geospiza magnirostris*.  
3. *Geospiza parvula*.

2. *Geospiza fortis*.  
4. *Certhidea olivacea*.

.....  
.....  
.....

# Incorporating the local into Sustainable Business models

Local innovation

Business models which create  
business and climate advantages from  
the local aspect

Situating the business in local climate  
action platforms



- Economic
- Environmental
- Social
- Cultural

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Sharpe, B., A. Hodgson, G. Leicester, A. Lyon, and I. Fazey. 2016. Three horizons: a pathways practice for transformation. *Ecology and Society* 21(2):47. <http://dx.doi.org/10.5751/ES-08388-210247>



*Insight*

### Three horizons: a pathways practice for transformation

*Bill Sharpe<sup>1</sup>, Anthony Hodgson<sup>1,2</sup>, Graham Leicester<sup>1</sup>, Andrew Lyon<sup>1</sup> and Ioan Fazey<sup>2</sup>*

**ABSTRACT.** Global environmental change requires responses that involve marked or qualitative changes in individuals, institutions, societies, and cultures. Yet, while there has been considerable effort to develop theory about such processes, there has been limited research on practices for facilitating transformative change. We present a novel pathways approach called Three Horizons that helps participants work with complex and intractable problems and uncertain futures. The approach is important for helping groups work with uncertainty while also generating agency in ways not always addressed by existing futures approaches. We explain how the approach uses a simple framework for structured and guided dialogue around different patterns of change by using examples. We then discuss some of the key characteristics of the practice that facilitators and participants have found to be useful. This includes (1) providing a simple structure for working with complexity, (2) helping develop future consciousness (an awareness of the future potential in the present moment), (3) helping distinguish between incremental and transformative change, (4) making explicit the processes of power and patterns of renewal, (5) enabling the exploration of how to manage transitions, and (6) providing a framework for dialogue among actors with different mindsets. The complementarity of Three Horizons to other approaches (e.g., scenario planning, dilemma thinking) is then discussed. Overall, we highlight that there is a need for much greater attention to researching practices of transformation in ways that bridge different kinds of knowledge, including episteme and phronesis. Achieving this will itself require changes to contemporary systems of knowledge production. The practice of Three Horizons could be a useful way to explore how such transformations in knowledge production and use could be achieved.

**Key Words:** *adaptation pathways; climate change; scenarios; transformation; transition*

#### **INTRODUCTION**

Climate and other environmental change is a serious threat to the security and well-being of the expected 9–10 billion population

with uncertain futures in imaginative ways while also retaining important societal features from the present. Interest in Three Horizons has been growing over the last decade, and this

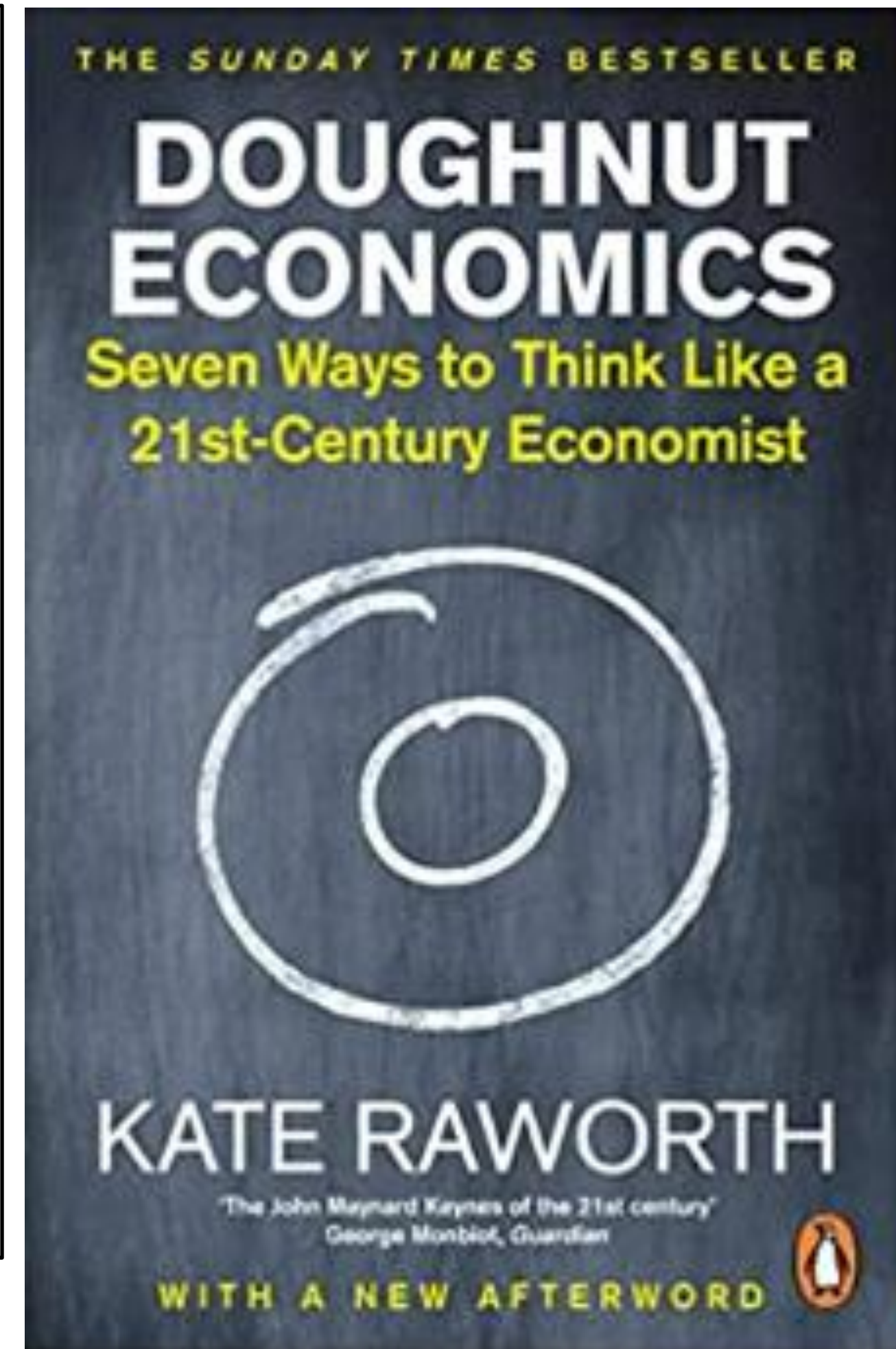


# The three horizons (always in sight)

- **Horizon 1: 'Business as usual'**
- **Horizon 2: 'Disruptive innovation'**
- **Horizon 3: 'Emerging future'**

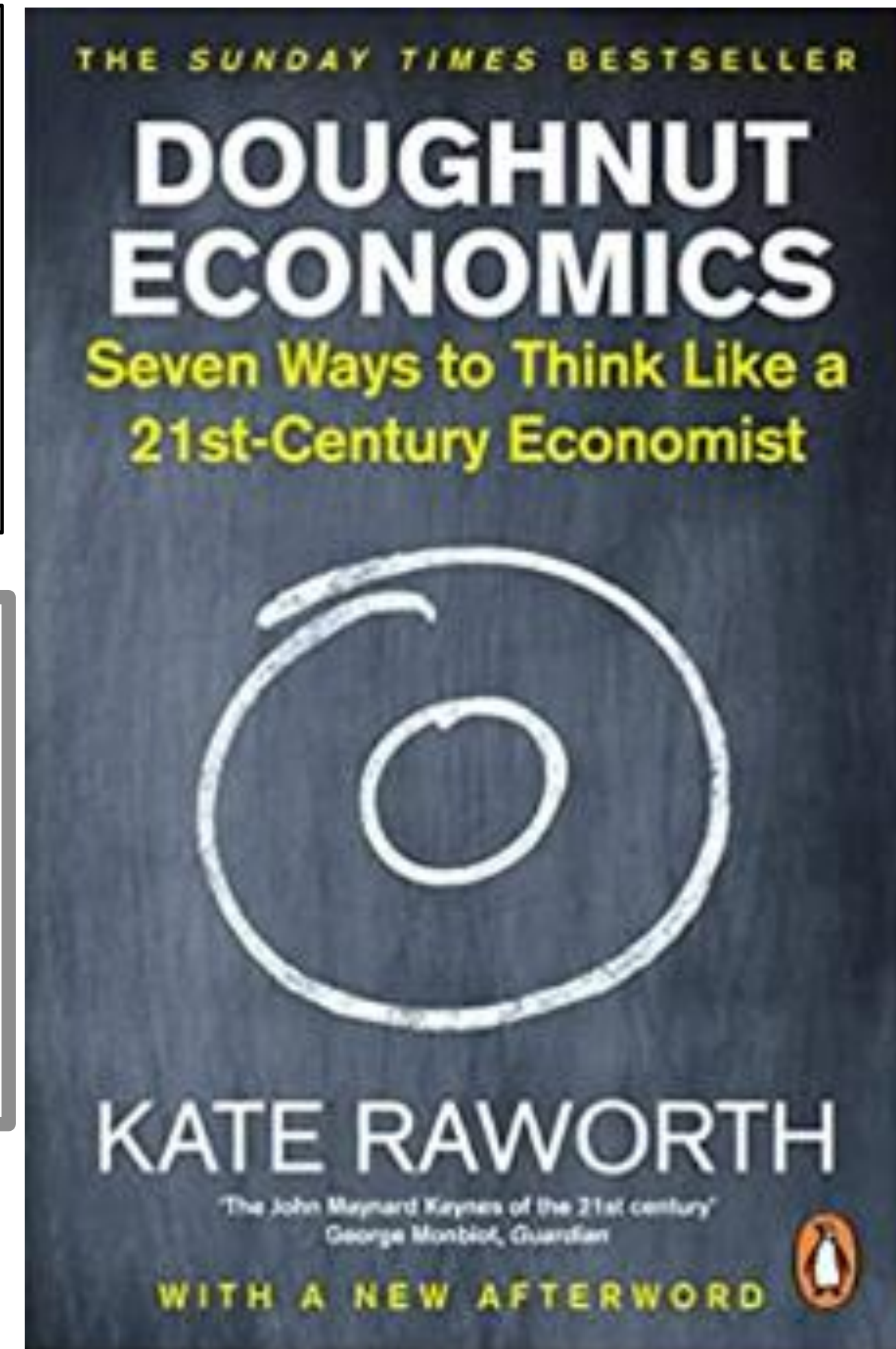
Introduction: *Who wants to be an economist?*

- Crisis of economics in universities
- Economics has become the dominant discipline for governments
- She suggests 7 ways in which we have to change our thinking.



- *Chapter 1: Change the goal*
- GDP = The market value of goods and services produced by a nation in a year
- [Now contested] correlations with employment growth

- Results in countries being run as economies, rather than societies
- Assumes that growth eventually fixes everything.
- New goals required....

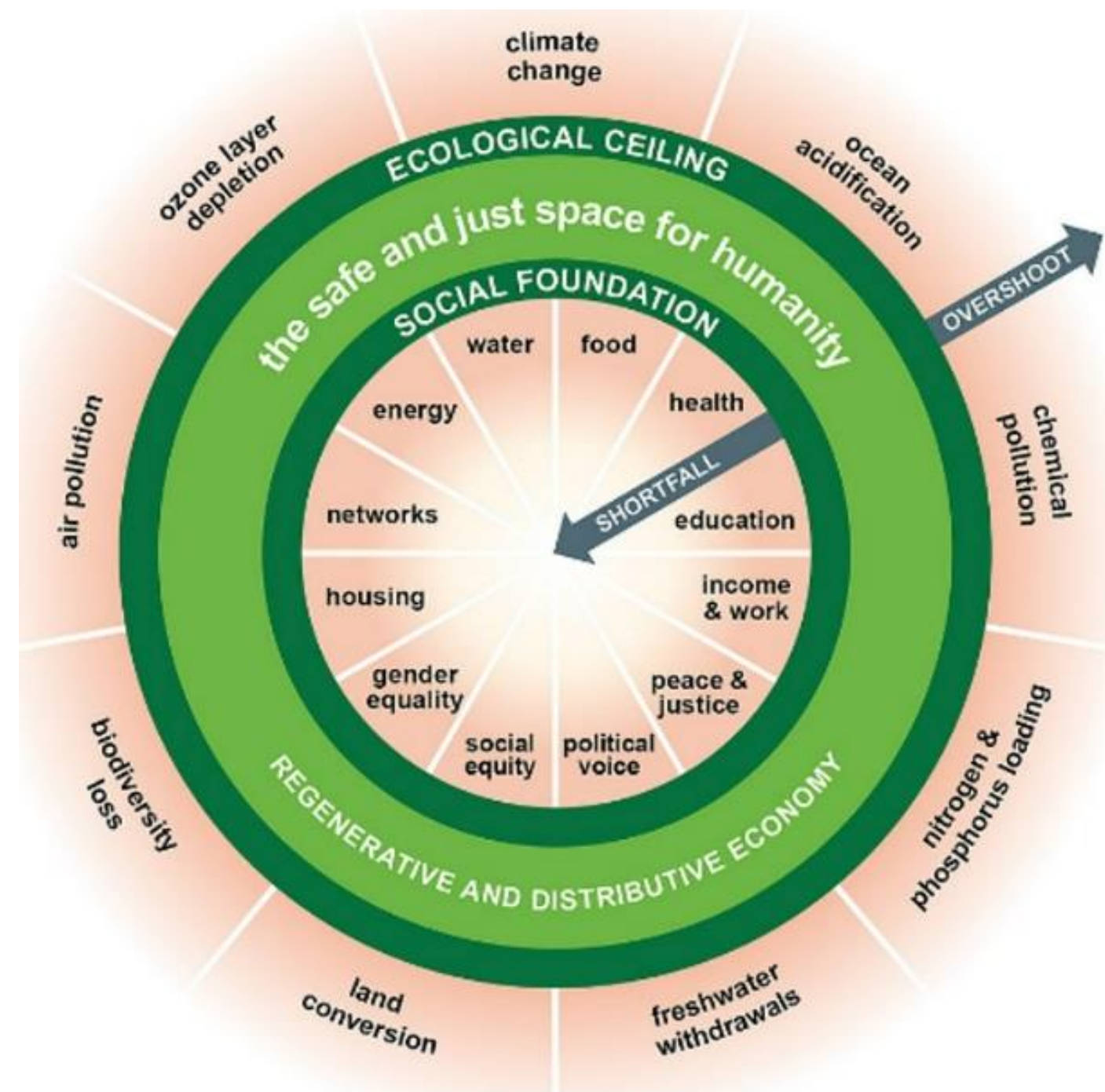




# 'Human prosperity in a flourishing web of life' (p. 55)

## Social foundation of human wellbeing

- Health
- Education
- Income & work
- Peace & justice
- Political voice
- Social equity
- Gender equality
- Housing
- Networks
- Energy
- Water
- Food

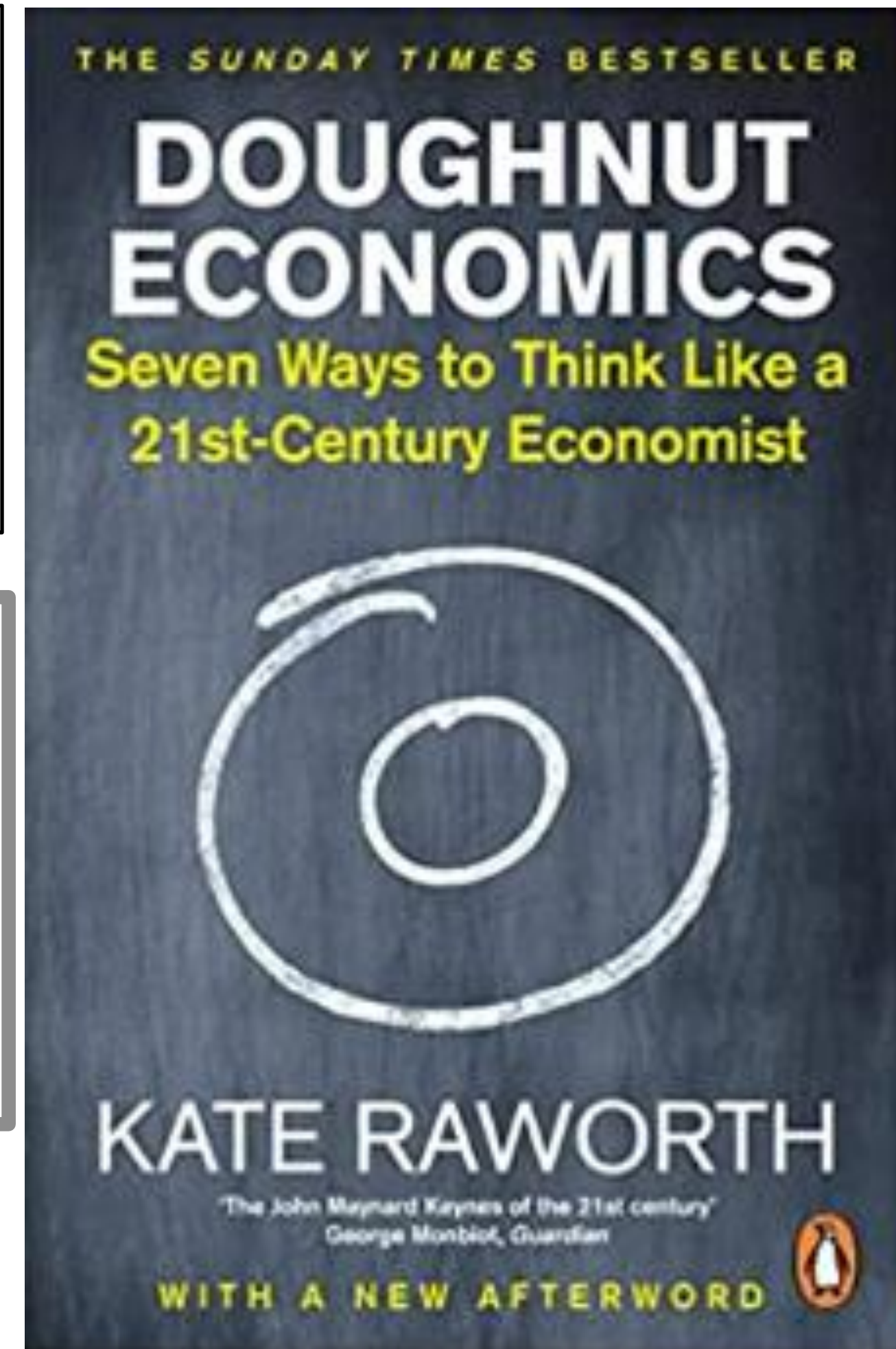


## Ecological ceiling of planetary pressures

- Chemical pollution
- Nitrogen & phosphorous loading
- Freshwater withdrawals
- Land conversion
- Biodiversity loss
- Air pollution
- Ozone layer depletion
- Climate change
- Ocean acidification

- Doughnut Economics *Chapter 6: Create to Regenerate*
- Create economies which are regenerative by-design
- Externalities and the linear economy
- One-way economic systems destroy the environment and creates externalities which the poorest have to handle.

- Environmental Quality is highest in areas with strongest
  - Income distribution
  - Literacy
  - Equality and social inclusion
- Re-generative economies
  - Generosity of **bio-mimicry**



# What is the Circular Economy?

CE is an 'an economic system that replaces the 'end-of-life' concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes" (Kirchher et al, 2017 p.229).

Outputs previously conceptualised as waste are now seen as a resource to create value. Value is retained in the economic system by redesigning products... and by extending product life...

Despite vast potential only 8.6% of the economy is estimated to be circular. To transform the economy to one where waste is no longer produced, materials are reused and nature is regenerated, a systematic shift is need to put circularity at the heart of all business activity' (Ahmad et al, 2023)

'A closed spaceship economy' (Boulding 1966)





# Industrial symbiosis

- Waste and by-products from one business are used as raw materials by another
  - Kujala Waste Centre, Lahti, Finland
    - 20 interconnected store, handle, recover, transfer and dispose of waste
  - Pécs-Kökény Waste Management Centre, Pécs, Hungary
  - Sludge effluent as agricultural fertilizer
  - Stockholm Data Parks using waste heat from data centres to heat homes at Winter



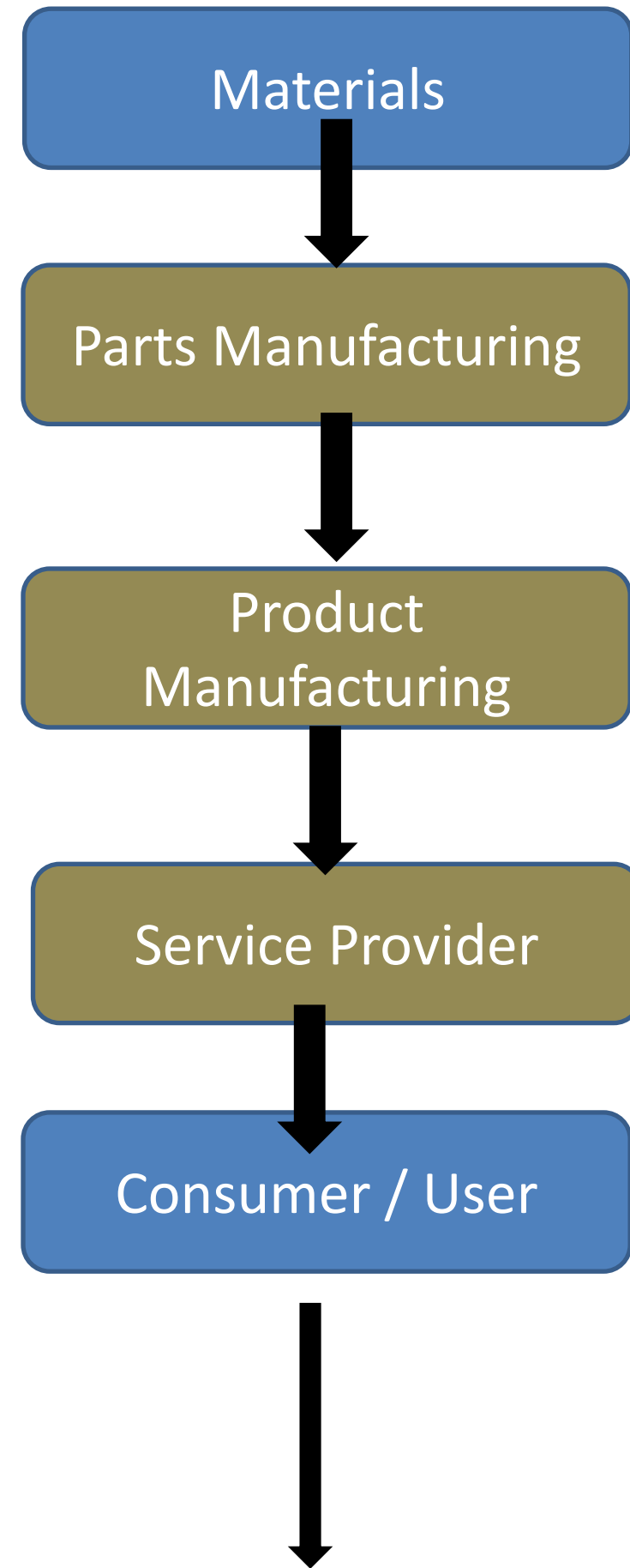
# Choosing a Circular Economy Approach

- Business Model Choice
  - Biological Versus Technical (Ellen McArthur Foundation 'Butterfly')
  - Circular Business Model Strategies (Bocken et al, 2016)
  - Types of Circular Business Model Innovation (Geissdoerfer et al, 2018)

# Circular Economy concepts



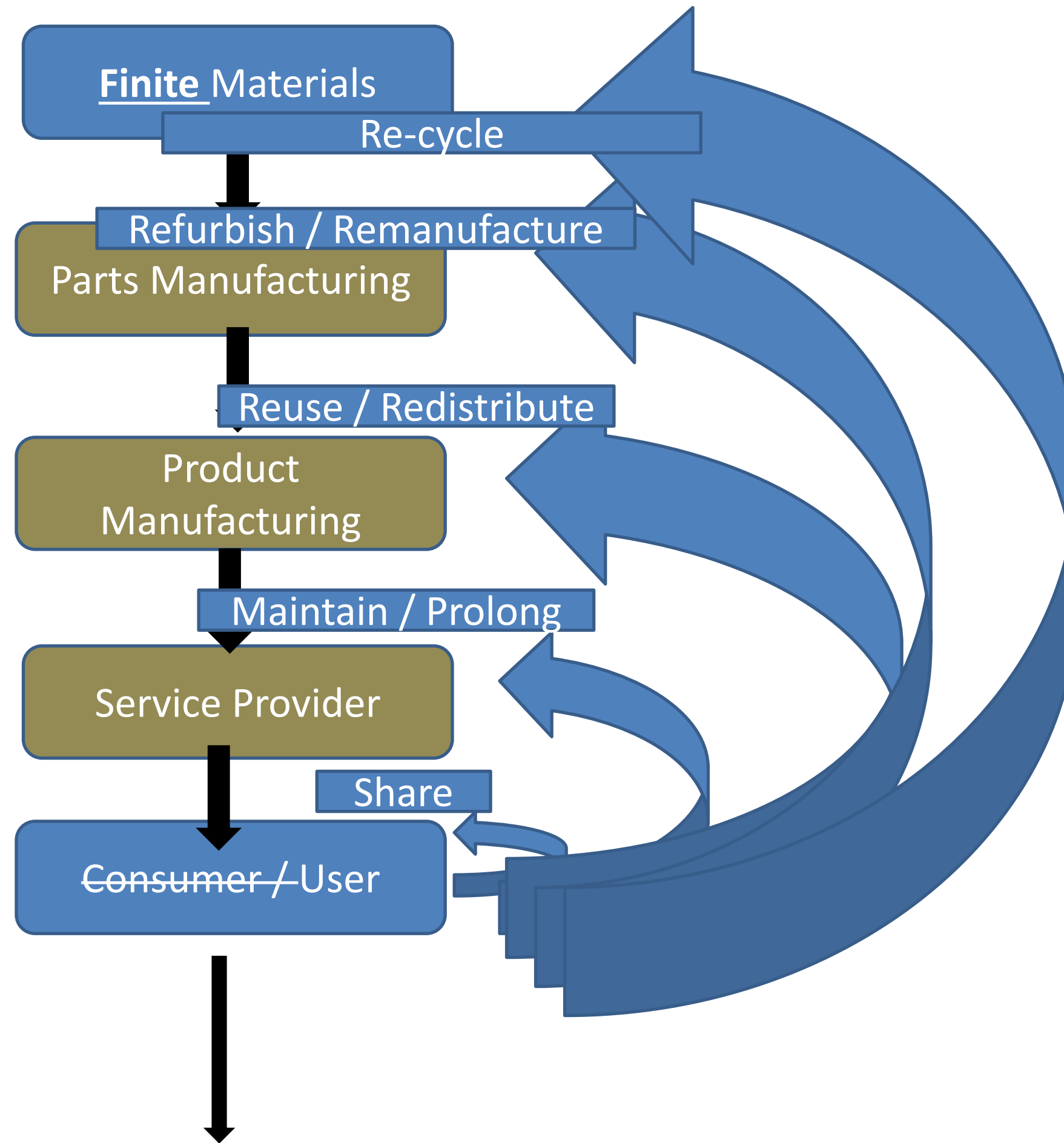
- There isn't just one circular economy business model
  - **Biologically** renewable materials (e.g food waste, compostables, wood-based products)
    - Consumed, rather than used
    - Focus is allow post-consumption materials to return to nature in a way that benefits it
  - **Technical** materials (e.g. steel, plastics)
    - Used, rather than consumed
    - Focus is on keeping materials in use for as long as possible.



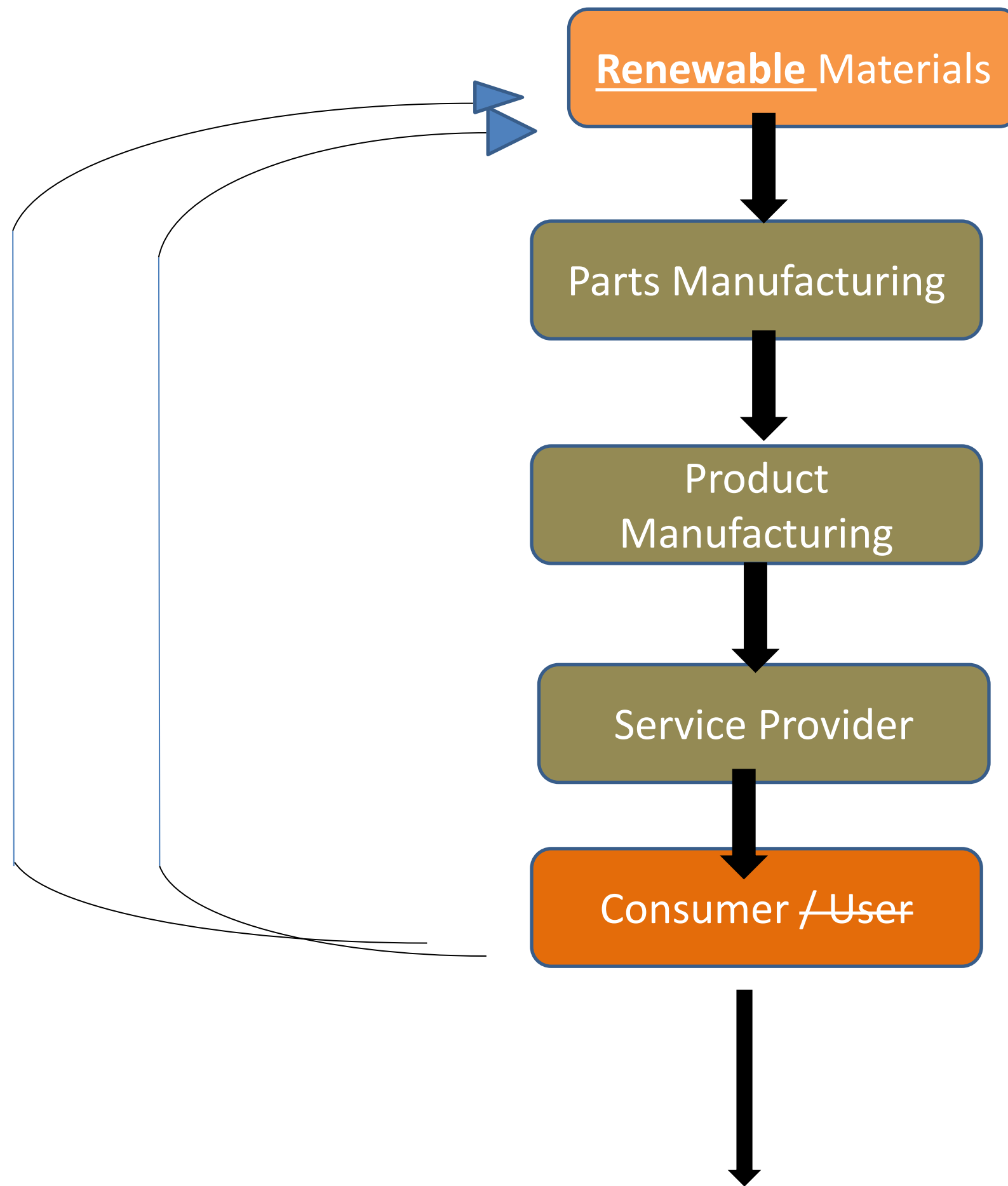


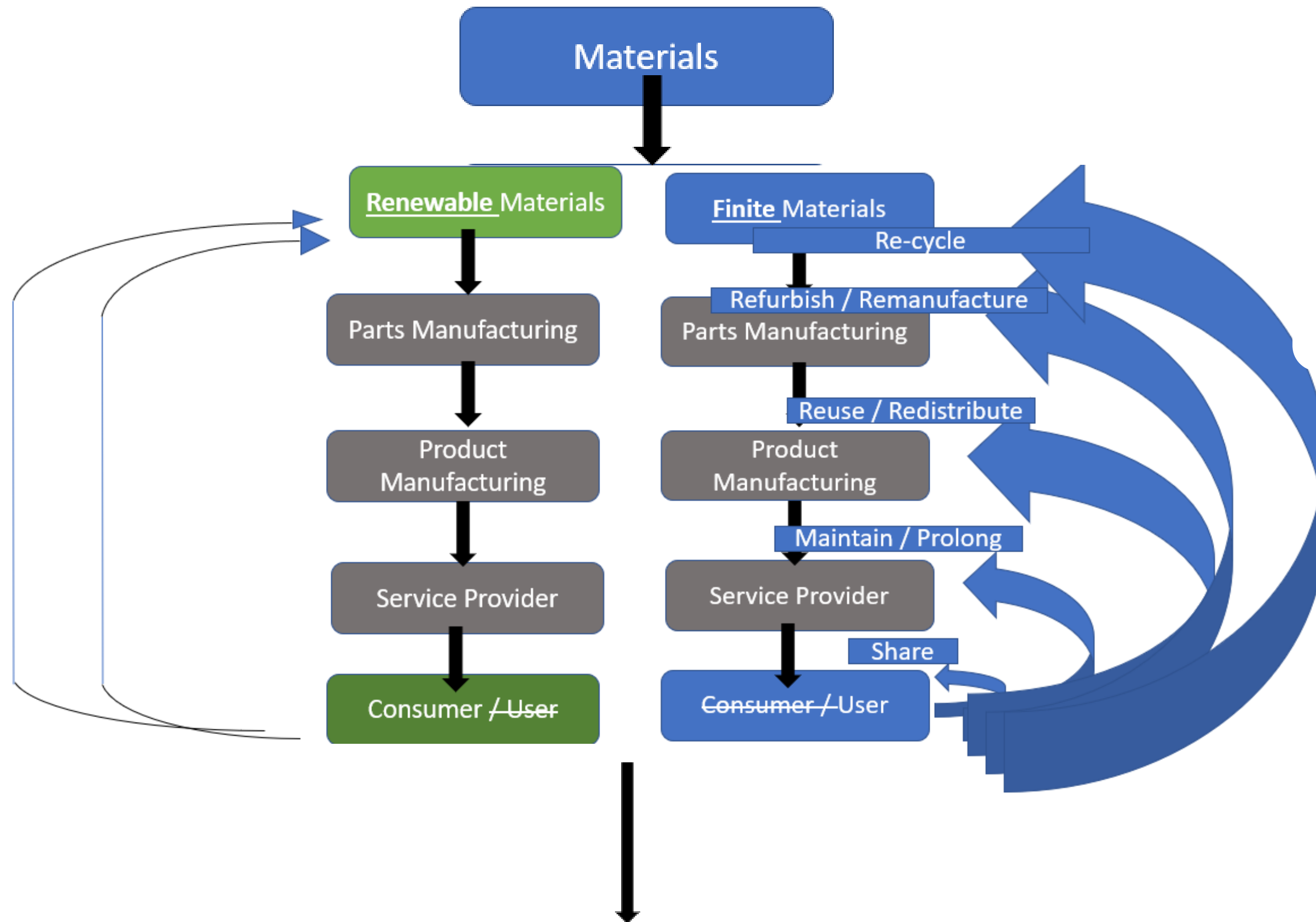
# Technical approach

- Prioritise the smaller 'inner loops' because
  - They require less resources to break down and remake the product
  - They save costs for customers
  - They save costs for businesses



# Biological cycle






Circular Business Model Strategies (Bocken et al, 2016)

Circular business models


**Cycling**

Materials and energy are recycled within the system, through reuse, remanufacturing, re-furbishing, and recycling



**Extending**

The use phase of the product is extended, through long-lasting design, marketing, maintenance, and repair



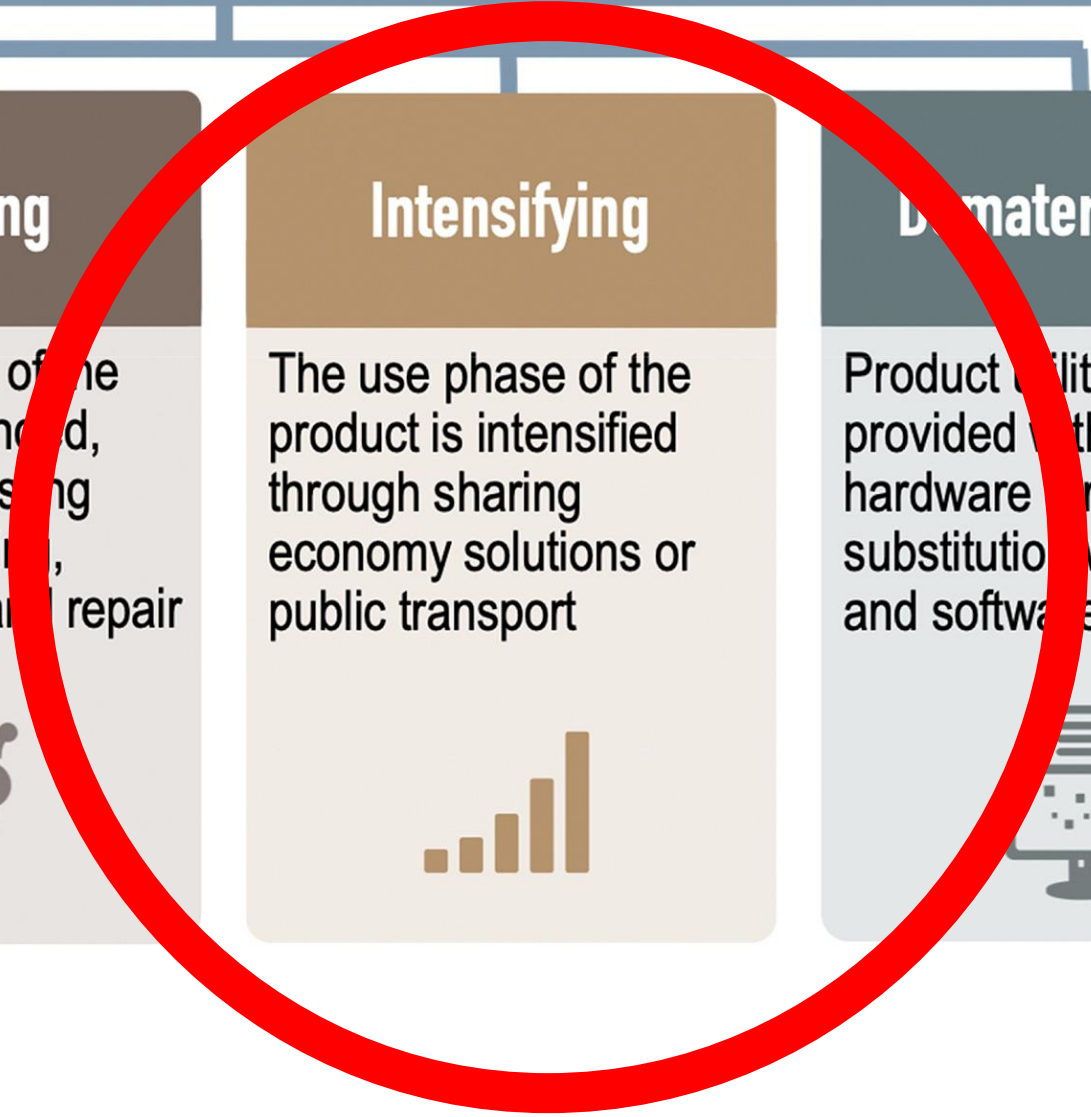
**Intensifying**

The use phase of the product is intensified through sharing economy solutions or public transport



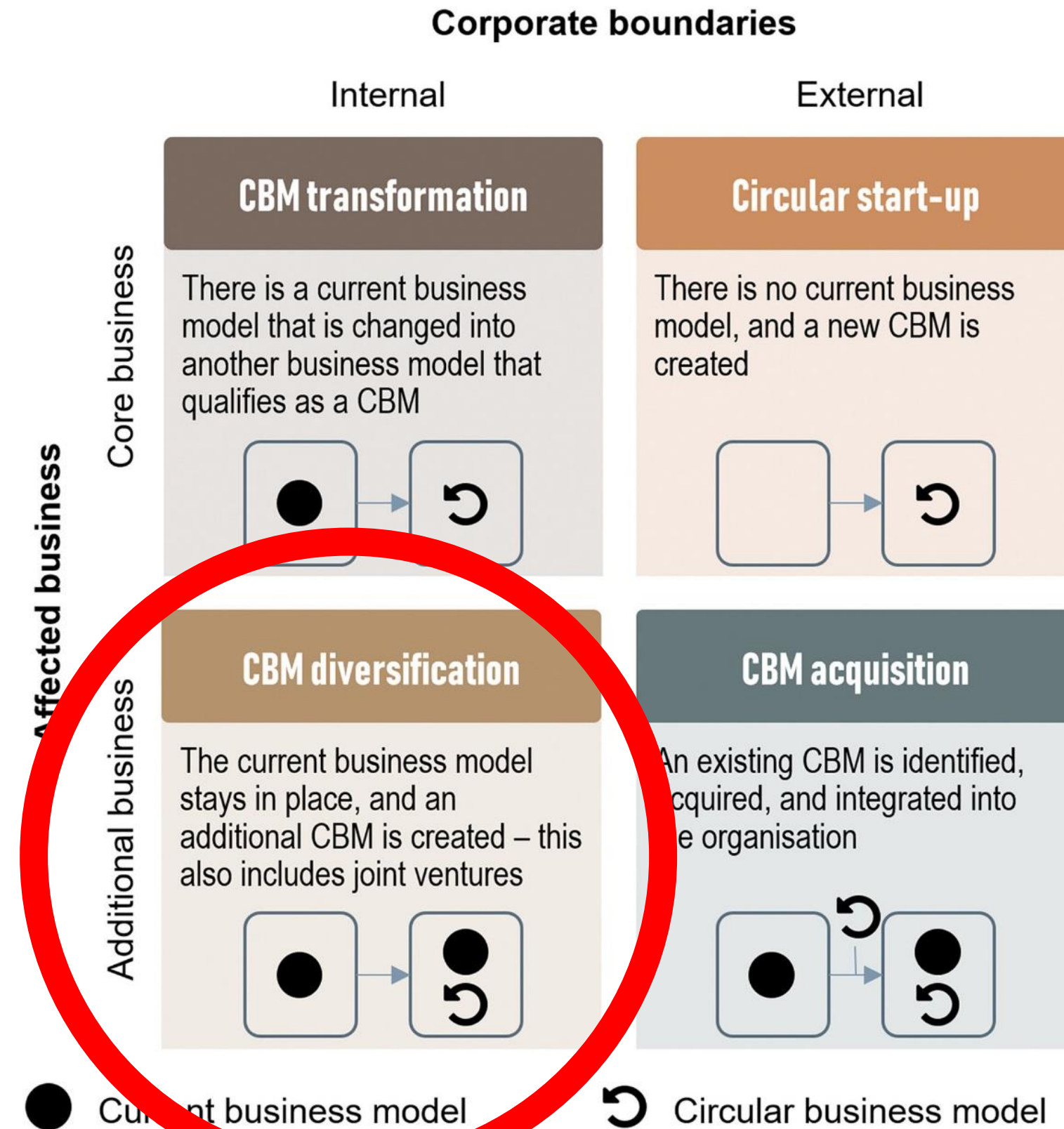
**Dematerialising**

Product utility is provided without hardware through substitution with service and software solutions

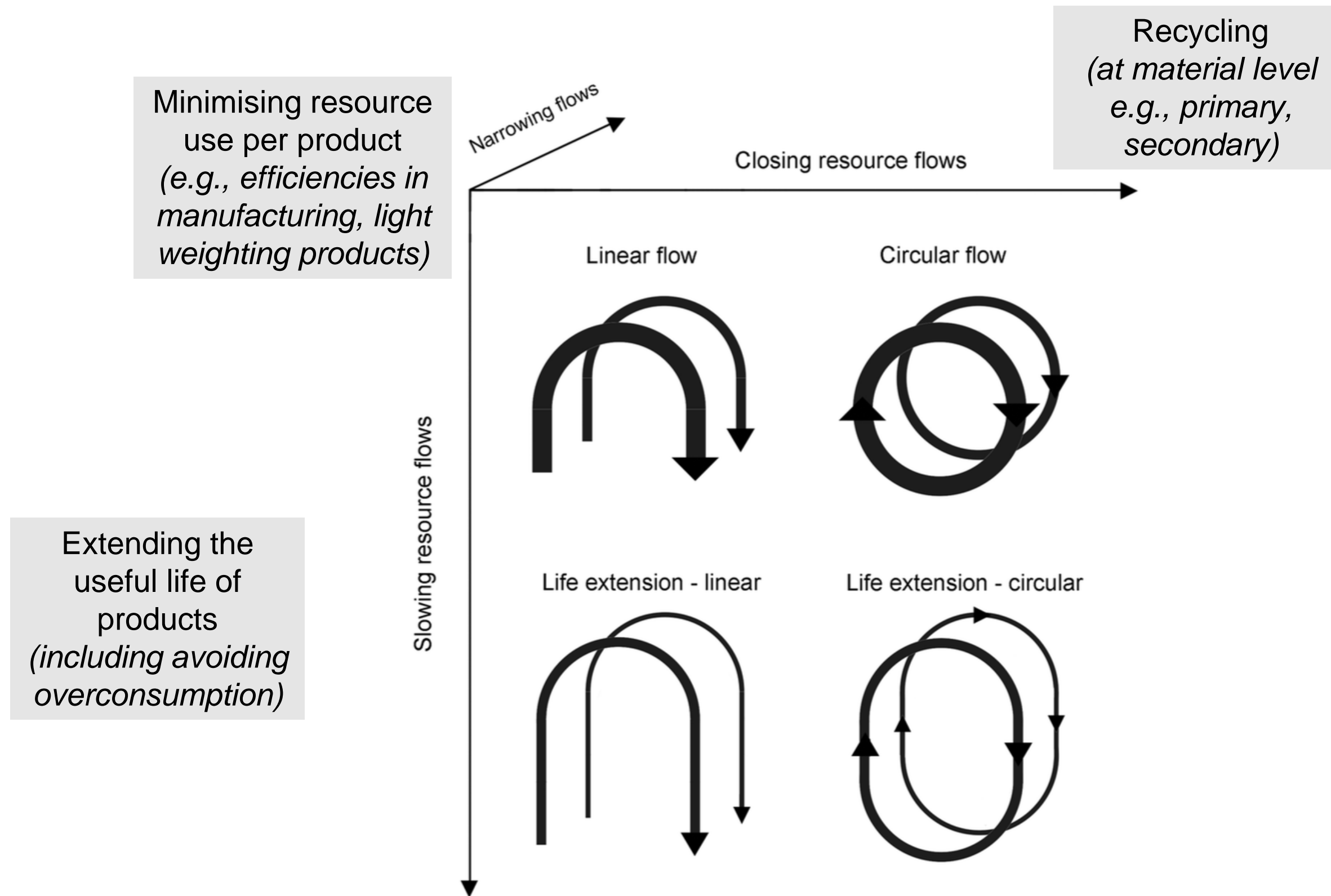


# Circular Business Model Innovation

## Strategies (Geissdoerfer et al, 2018)



# Circular Economy



Source: Bocken, N.M.P., de Pauw, I., van der Grinten, B., Bakker, C. 2016. Product design and business model strategies for a circular economy. J. Industrial & Production Engineering, 32 (1), 67-81.

# Open Innovation

- Open innovation refers to openness of the innovation outcome or the innovation process
- ***Innovation outcome***: those that benefit from the innovation might involve a limited or broad open audience
  - Circular economy' example: iFixit, whose community consists of people who help each other 'fix stuff' for free with tips and tricks
- ***Innovation process***: might be open or closed, thus involving a limited or large number of innovators and stakeholders
  - Circular economy' example: circular hackathons', where the process of innovating is open to all
  - **In the following framework the focus is on the process aspect of open innovation**

# Foundations of the framework

- **Resource strategy** refers to the key aim of the circular business model, which we divide in three aspects, based on narrowing, closing loops or slowing resource loops (Bocken et al., 2016).
- **Innovation strategy** refers to the classic division between “closed” and “open” innovation, and in the context of our study, to the strategic openness of the business model in question (Chesbrough & Appleyard, 2007).

Bocken, N.M.P., de Pauw, I., van der Grinten, B., Bakker, C. 2016. Product design and business model strategies for a circular economy. *J. Industrial & Production Engineering*, 32 (1), 67-81.

Chesbrough, H. W., & Appleyard, M. M. (2007). Open innovation and strategy. *California management review*, 50(1), 57-76.



# Circular business model strategy framework

## Resource strategy

### Narrowing loops

### Slowing loops

### Closing loops

Open

**Innovation  
strategy**

Closed

	<i>Open-narrowing</i>	<i>Open-slowng</i>	<i>Open-closing</i>
Open	<p><b>Value proposition (example):</b> Reduce waste and resources in design and production processes</p> <p><b>Value creation &amp; delivery:</b> Reduce cost and negative impact through new technologies and processes in collaboration with suppliers, customers and others</p> <p><b>Value capture logic:</b> Save cost and resources</p>	<p><b>Value proposition (example):</b> Reuse resources to broaden the offerings to the customer (e.g. vintage, second-hand)</p> <p><b>Value creation &amp; delivery:</b> Create value by connecting internal and external resource flows via generative models</p> <p><b>Value capture logic:</b> Increase the number of transactions in an ecosystem via reuse of products</p>	<p><b>Value proposition (example):</b> A circular offering which involves lower environmental footprint and resource burden</p> <p><b>Value creation &amp; delivery:</b> Combine resource flows from external ecosystem into customer offerings</p> <p><b>Value capture logic:</b> Lower the cost of resources used in customer offerings, improve brand/corporate image</p>
Closed	<p><i>Closed-narrowing</i></p> <p><b>Value proposition (example):</b> Reduce waste and resources in design and production processes</p> <p><b>Value creation &amp; delivery:</b> Reduce cost and negative impact through internal technology, process and design innovations</p> <p><b>Value capture logic:</b> Save cost and resources</p>	<p><i>Closed-slowng</i></p> <p><b>Value proposition (example):</b> High quality products with high customer value</p> <p><b>Value creation &amp; delivery:</b> Long lasting design, repair services; Create more value from less resources</p> <p><b>Value capture logic:</b> Charging of price premium through achieving quality leadership and customer loyalty</p>	<p><i>Closed-closing</i></p> <p><b>Value proposition (example):</b> Connect with customers by using, recovering, and maintaining post-consumer materials</p> <p><b>Value creation &amp; delivery:</b> Increase customer retention and repurchases via take-back plans</p> <p><b>Value capture logic:</b> Resource efficiency, improve brand and reputation, reduce cost for materials</p>

*Call for Papers*

## **Between Circular Paralysis and Utopia: Organizational Transformations towards the Circular Economy**

*'No matter how good companies are at showcasing their circular initiatives or discussing the merits of the circular economy, the reality is that only a limited percentage of products and materials is recycled, let alone reused, refurbished, or repaired (Ludeke-Freund et al., 2019).*

*Moreover, despite many claims and well-meaning attempts towards circularity the use of plastic has risen while recycling rates have deteriorated (Greenpeace, 2022).*

*While some European countries provide more institutional support for circular economy initiatives..., organisational efforts to implement wide-sweeping circular business models and ecosystems are limited and the transition pathways are beset with tensions..*

*The barriers to pursuing circular economy models are numerous. For instance, companies cannot become circular on their own but need to relay on a well-functioning circular ecosystem (Parida et al. 2019). These ecosystems often depend on public sector involvement (Patala et al., 2022).*



### **Business opportunities**

- Platforms to
  - disrupt for **polymorphic nature-positive enterprise development.**
  - **local employment growth.**

**What emerging horizons can we facilitate?**

### **Climate Action**

- Research that*
- Stimulates **local enterprise eco-systems** based bio-mimicry
  - scopes the **research** needed to develop the platform

