



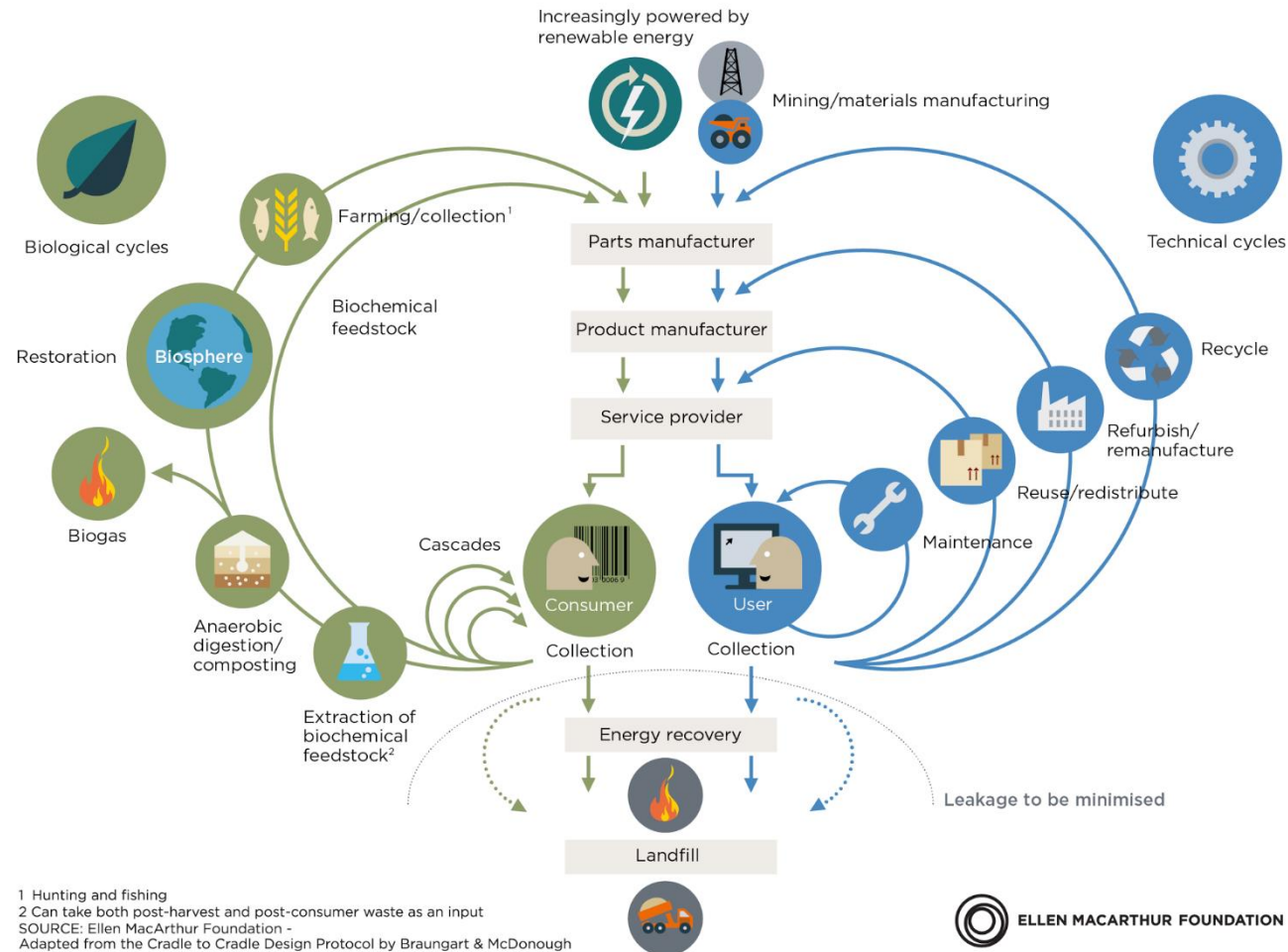
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Intro to the Circular Economy

Q3, 2019

Ellen Macarthur butterfly diagram

CIRCULAR ECONOMY - an industrial system that is restorative by design



The Hard Business Facts Today

68% of CE projects come out of the EU

14% of CE projects come out of the US

6% of CE projects come out of ASIA

EU is seeing 3% productivity growth already with projected GDP growth of 7% by 2030

Only 9% of the companies in the world are currently heading down the CE path

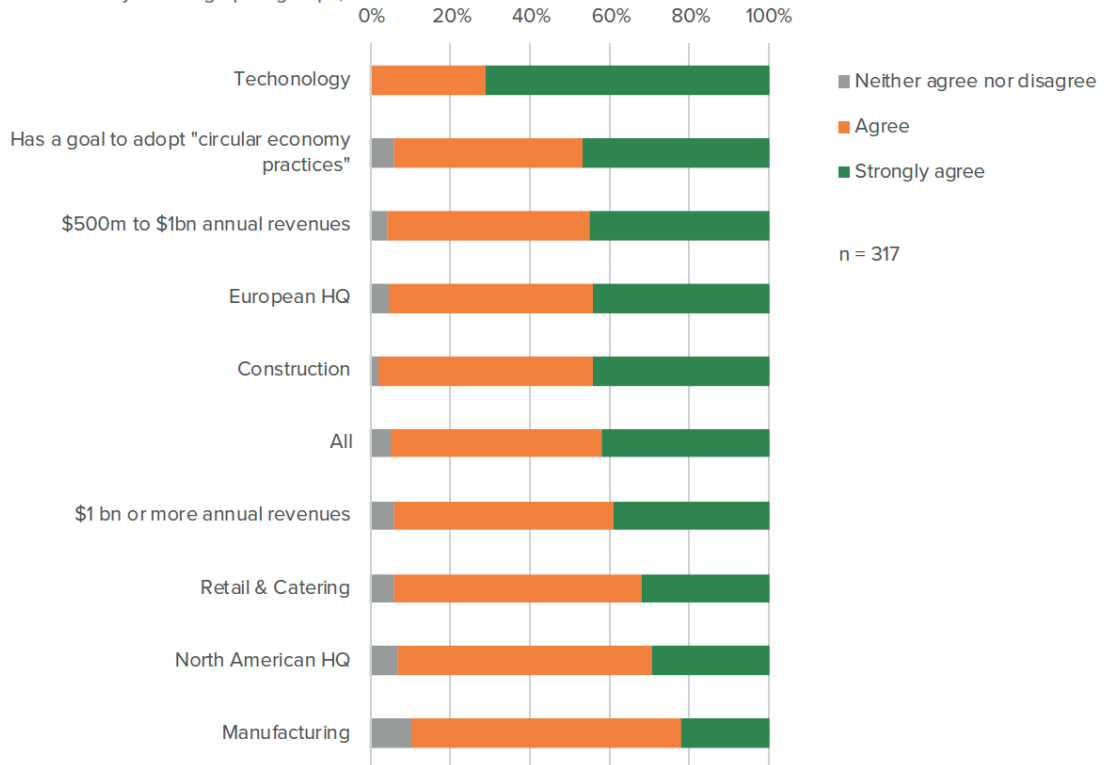
Who's Doing It

Key survey findings

95%

of executives agreed that the circular economy poses an opportunity for their organization (none disagreed). Technology company executives were most positive while those at North American-based companies and the manufacturing sector were more cautious.

Figure 1. To what extent do you agree that the transition to a circular economy poses an opportunity for your organization? All responses and selected major demographic groups, ranked



REduce Strategy

Figure 5. Manufacturing companies: advantages and challenges to REduce strategies



Figure 6. Construction companies: advantages and challenges to REduce strategies



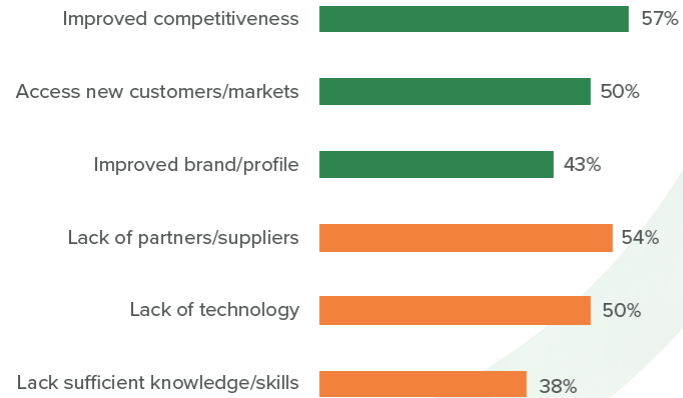
Average of four energy and material reduction strategies.

Respondents offered the choice of up to eight advantages: Lower costs, increase revenues, improved competitiveness, risk mitigation, access new markets, enhance innovation, improved brand/profile, meet regulatory requirements; and the up to eight barriers: cost, lack of business case, lack of knowledge/skills, lack of technology, mis-matched incentives, lack of coordination, not a business priority, restrictive regulations

n Manufacturing = 78 n Construction = 78

Remake Strategy

Figure 10. Manufacturing companies: advantages and challenges to REmake strategies



Respondents offered the choice of up to seven advantages: Lower costs, increased revenues, improved competitiveness, risk mitigation, access new markets, improved brand/profile, meet regulatory requirement; and eight barriers: cost, lack of business case, lack of sufficient knowledge/skills, mis-matched or conflicting incentives, lack of coordination, not a business priority, restrictive regulations

Figure 11. REcover strategies: Share of companies that will do the following for *all or most* products/projects in the next five years:



n Manufacturing = 78
n Construction = 78

Sustainable Sourcing

Figure 17. Opportunities and challenges in sustainable sourcing
Average for all industries except basic industries (manufacturing, constructing, retail and catering and technologies)



Respondents offered the choice of up to eight advantages: lower costs, increased revenues, improved competitiveness, risk mitigation, access new customers/markets, enhance innovation, improved brand/profile, meet regulatory requirements; and up to seven barriers: cost, lack of business case, insufficient supply, quality concerns, restrictive regulations, lack of incentives, not a business priority.

n = 307



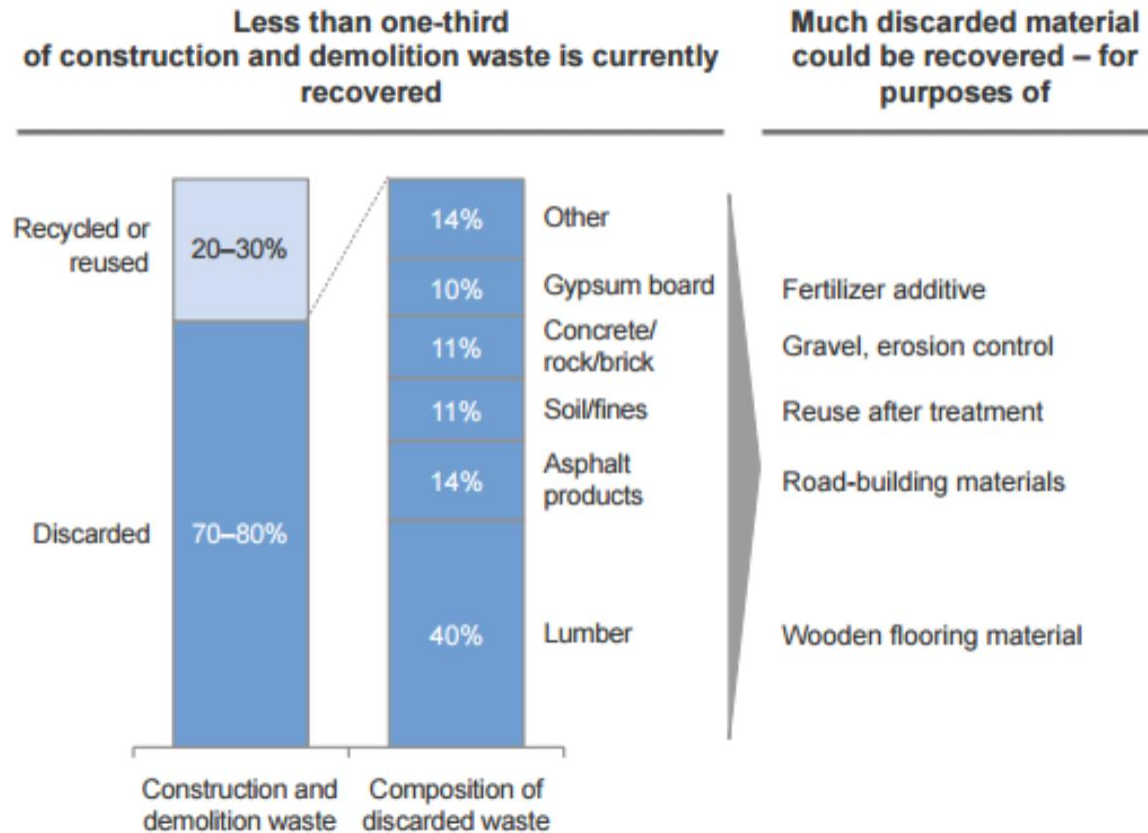
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The concept of “circularity”

Q3, 2019

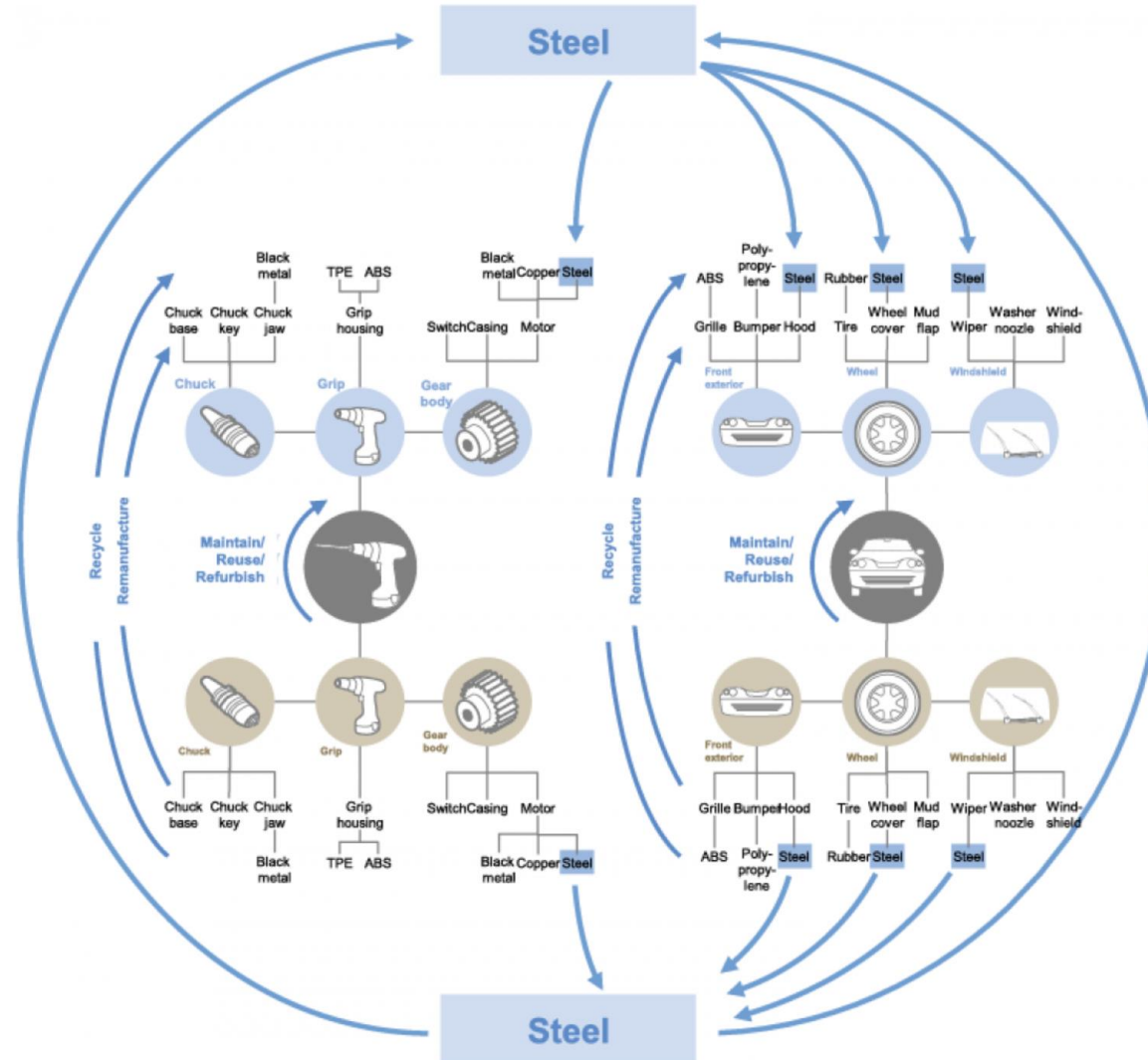
Construction Examples

Construction and Demolition Waste



Source: Ellen MacArthur Foundation; World Economic Forum; The Boston Consulting Group

Industrial Examples



Opportunities Today

Clothing: Patagonia

Plastics: Everywhere

Paper: Packaging Materials

Shoes: Rens, Adidas, Nike

Services: AirBnB Uber,



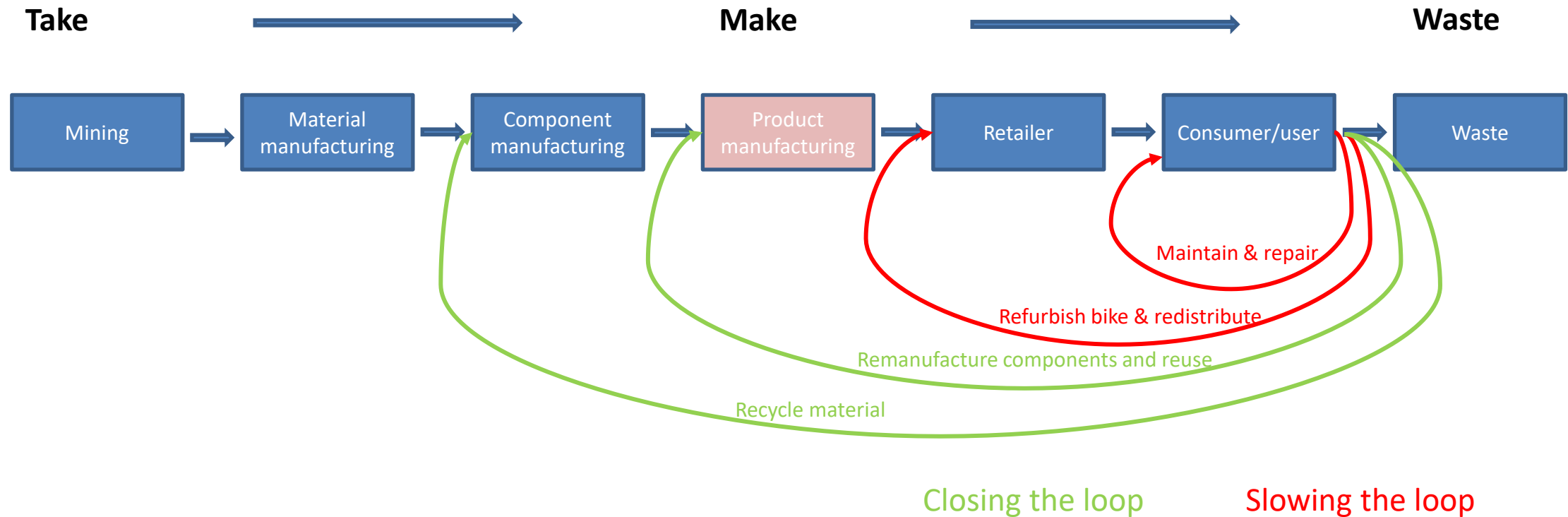
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Transforming to a circular value chain

Q2, 2019

The Guru of Biz- Chuck Nemer

From linear to circular business : several options



Slowing, closing and narrowing loops (1)

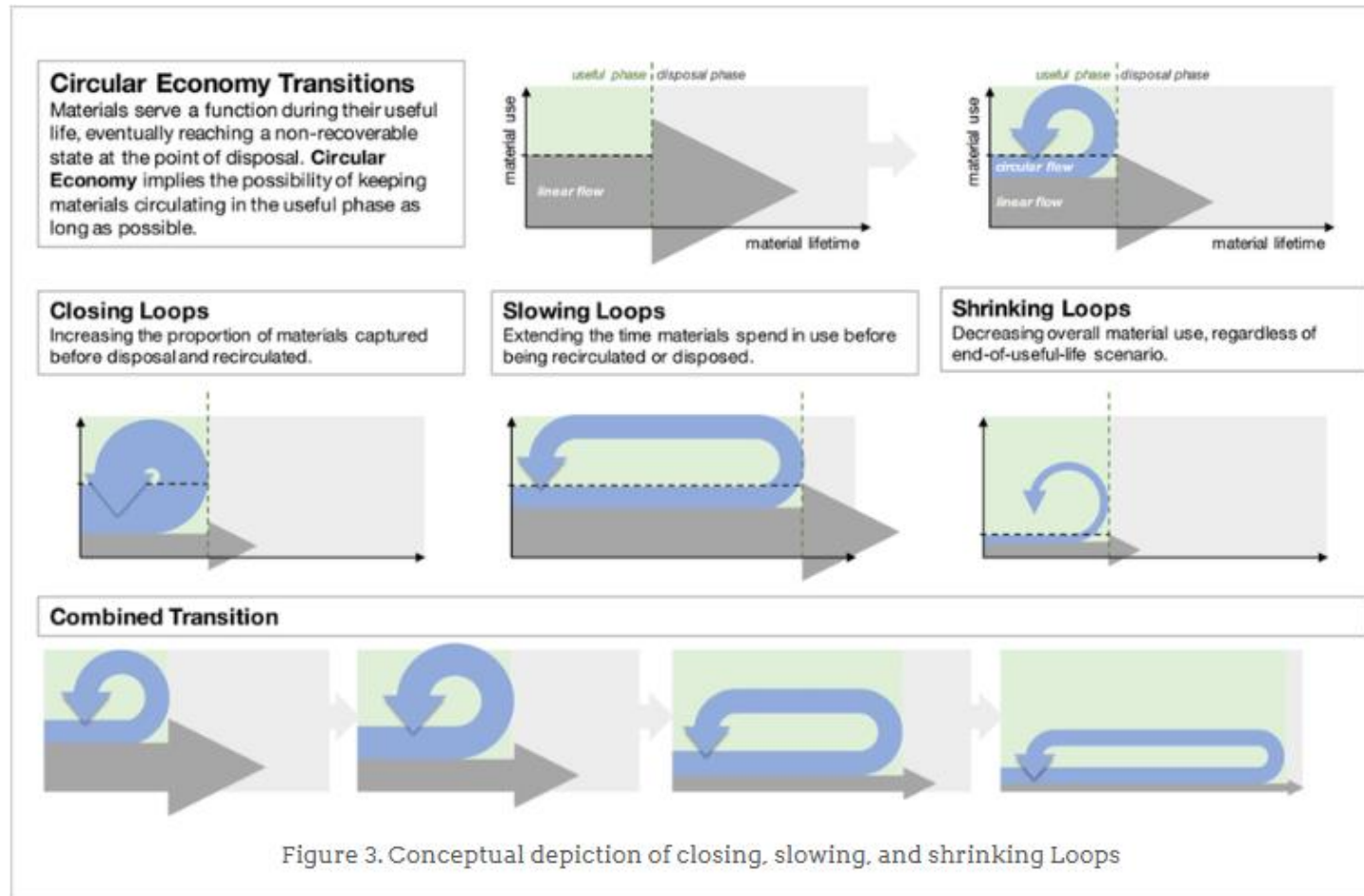


Figure 3. Conceptual depiction of closing, slowing, and shrinking Loops

Slowing, closing and narrowing loops (3): design strategies

Table 1. Overview of design strategies to slow resource loops.

Design strategies to slow loops

Designing long-life products

- Design for attachment and trust
- Design for reliability and durability

Design for product-life extension

- Design for ease of maintenance and repair
 - Design for upgradability and adaptability
 - Design for standardization and compatibility
 - Design for dis- and reassembly
-

Table 2. Overview of design strategies to close resource loops.

Design strategies to close loops

- Design for a technological cycle
 - Design for a biological cycle
 - Design for dis- and reassembly
-

Note: Design for dis- and reassembly fit both strategies for closing and slowing loops.

Accenture: 5 circular business models from “Circular Advantage”

Figure 5: The five circular business models

Business Models

- Circular Supplies:** Provide renewable energy, bio based- or fully recyclable input material to replace single-lifecycle inputs
- Resource Recovery:** Recover useful resources/energy out of disposed products or by-products
- Product Life Extension:** Extend working lifecycle of products and components by repairing, upgrading and reselling
- Sharing Platforms:** Enable increased utilization rate of products by making possible shared use/access/ownership
- Product as a Service*:** Offer product access and retain ownership to internalise benefits of circular resource productivity

* Can be applied to product flows in any part of the value chain

