

NARROW

#01

Design with low-impact inputs

Design products with materials requiring less land, energy, and water.

Focus: Product

NA-P-01

NARROW

#02

Design light-weight products

Reduce material mass while maintaining function.

Focus: Product

NA-P-02

NARROW

#03

Design for multiple functions

Combine functions to reduce total products needed.

Focus: Product

NA-P-03

NARROW

#04

Eliminate production waste

Minimize waste from manufacturing processes (scraps, rejects, excess energy/heat).

Focus: Business Model

NA-BM-04

NARROW

#05

Enable & incentivize users to consume less

Encourage sufficiency-oriented consumption patterns.

Focus: Business Model

NA-BM-05

NARROW

#06

Organize light-weight urban transport

Reduce logistics footprint via efficient delivery systems.

Focus: Business Model

NA-BM-06

FRANCESCA

NARROW

INDUSTRY EXAMPLE

Emeco's Navy Chair uses durable aluminum to achieve a strong yet relatively lightweight design. Lower weight can reduce transport emissions across distribution and relocation cycles.

→ www.emeco.net

#02

FRANCESCA

NARROW

INDUSTRY EXAMPLE

IKEA uses bamboo in selected furniture and home products, leveraging a fastgrowing renewable material. When responsibly sourced, bamboo can reduce pressure on slowergrowing hardwood resources.

→ www.ikea.com

#01

FRANCESCA

NARROW

INDUSTRY EXAMPLE

Vestre's The Plus factory is designed for high resource efficiency and reduced production waste. It integrates lowemission operations and optimized material/energy flows in manufacturing.

→ vestre.com/theplus

#04

FRANCESCA

NARROW

INDUSTRY EXAMPLE

Resource Furniture offers transforming systems that merge functions like bed, desk, and storage. By consolidating utility, households and offices can meet needs with fewer items overall.

→ resourcefurniture.com

#03

FRANCESCA

NARROW

INDUSTRY EXAMPLE

IKEA has piloted and expanded loweremission lastmile delivery options in cities, including electric vehicles. Cleaner urban logistics can cut emissions from bulky furniture distribution and returns.

→ www.ikea.com

#06

FRANCESCA

NARROW

INDUSTRY EXAMPLE

IKEA's Buy Back & Resell encourages customers to return used furniture rather than replacing it with new. This can reduce demand for virgin materials by extending the life of products already in use.

→ www.ikea.com

#05

NARROW

#07

Localize supply where appropriate

Source closer to production or markets when beneficial.

Focus: Business Model

NA-BM-07

NARROW

#08

Maximize capacity use of products

Increase utilization rates through sharing/access models.

Focus: Ecosystem

NA-E-08

SLOW

#09

Design for physical durability

Design products that degrade more slowly than alternatives.

Focus: Product

SL-P-09

SLOW

#10

Design for emotional durability

Create long-term user attachment through aesthetics, story, and trust.

Focus: Product

SL-P-10

SLOW

#11

Design for ease of maintenance & repair

Enable upkeep and repair with accessible parts and construction.

Focus: Product

SL-P-11

SLOW

#12

Design for easy dis- & reassembly

Allow non-destructive disassembly and reassembly.

Focus: Product

SL-P-12

FRANCESCA

NARROW

INDUSTRY EXAMPLE

NORNORM offers subscription-based office furniture that circulates between multiple customers over time. Higher utilization reduces idle assets and can lower overall demand for new furniture in an ecosystem.

→ www.nornorm.com #08

FRANCESCA

NARROW

INDUSTRY EXAMPLE

Artek produces and sources materials with strong Nordic and regional roots, supporting shorter supply routes for some product lines. Regional sourcing can reduce transport intensity and improve traceability for wood-based materials.

→ www.artek.fi #07

FRANCESCA

SLOW

INDUSTRY EXAMPLE

Carl Hansen & Søn's Wishbone Chair (CH24) is an iconic design often kept for decades. Timeless aesthetics and perceived quality can strengthen attachment and reduce premature replacement.

→ www.carlhansen.com #10

FRANCESCA

SLOW

INDUSTRY EXAMPLE

Vitra designs contract furniture for intensive use environments with robust materials and construction. Longer service life reduces replacement frequency and the associated material and carbon footprint.

→ www.vitra.com #09

FRANCESCA

SLOW

INDUSTRY EXAMPLE

USM Haller's modular connector system enables repeated disassembly and reconfiguration. This supports relocation, refurbishment, and reuse across changing space needs.

→ www.usm.com #12

FRANCESCA

SLOW

INDUSTRY EXAMPLE

USM Haller modular systems are built from standardized elements that can be replaced individually. This supports maintenance and repair without discarding the full product.

→ www.usm.com #11

SLOW

#13

Design for upgradability

Enable functional or performance upgrades over time.

Focus: Product

SL-P-13

SLOW

#14

Design for standardization & compatibility

Use standardized modules, dimensions, or interfaces.

Focus: Product

SL-P-14

SLOW

#15

Enable users to maintain/repair

Provide repair support, spare parts, instructions, and services.

Focus: Business Model

SL-BM-15

SLOW

#16

Remanufacture products/components

Rebuild products using recovered components to restore as-new performance.

Focus: Business Model

SL-BM-16

SLOW

#17

Repurpose products/components

Reuse products/components in new contexts to create new value.

Focus: Business Model

SL-BM-17

SLOW

#18

Provide lifetime warranty

Guarantee durability through warranty commitments and long-term support.

Focus: Business Model

SL-BM-18

FRANCESCA

SLOW

INDUSTRY EXAMPLE

String Furniture uses modular components that remain compatible across configurations and extensions. Standardization allows users to expand and adapt systems rather than replacing them.

→ stringfurniture.com #14

FRANCESCA

SLOW

INDUSTRY EXAMPLE

Steelcase's Leap chair is designed with components that can be replaced or refurbished (e.g., upholstery and parts). Upgradability supports longer product lifetimes and reduces wholeproduct replacement.

→ www.steelcase.com #13

FRANCESCA

SLOW

INDUSTRY EXAMPLE

Kinnarps offers services and programs to refurbish and remanufacture office furniture for continued use. Remanufacturing preserves the embedded materials and energy of existing products.

→ www.kinnarps.com #16

FRANCESCA

SLOW

INDUSTRY EXAMPLE

IKEA's spare parts service enables customers to replace missing or broken components. Keeping products functional with minor replacements can prevent early disposal.

→ www.ikea.com #15

FRANCESCA

SLOW

INDUSTRY EXAMPLE

Vitsoe's long-life philosophy emphasizes durable systems designed for decades of use and support. Strong warranties and support reduce perceived risk of keeping products longer.

→ www.vitsoe.com #18

FRANCESCA

SLOW

INDUSTRY EXAMPLE

Gispen's REMADE approach repurposes and redesigns existing furniture to fit new workspace needs. Repurposing avoids waste while delivering updated functionality and aesthetics.

→ www.gispen.com #17

SLOW

#19

Encourage sufficiency

Promote moderated consumption and longer use cycles.

Focus: Business Model

SL-BM-19

SLOW

#20

Provide product as a service

Retain ownership and offer access via service/subscription models.

Focus: Business Model

SL-BM-20

SLOW

#21

Organize maintenance & repair services

Offer refurbishment, maintenance, and repair as part of the value proposition.

Focus: Business Model

SL-BM-21

SLOW

#22

Upgrade/adapt existing products

Adapt products to new needs through upgrading services.

Focus: Business Model

SL-BM-22

SLOW

#23

Turn disposables into reusable services

Replace disposable offerings with reusable product-service ecosystems.

Focus: Ecosystem

SL-E-23

CLOSE

#24

Design with recycled inputs

Use recycled materials as inputs in products.

Focus: Product

CL-P-24

FRANCESCA

SLOW

INDUSTRY EXAMPLE

NORNORM's subscription model keeps ownership with the provider and circulates furniture between clients. This creates incentives for durability, maintenance, and systematic recovery.

→ www.nornorm.com

#20

FRANCESCA

SLOW

INDUSTRY EXAMPLE

IKEA promotes repair, spare parts, and second-life initiatives that encourage reuse over replacement. Sufficiency messaging and services can shift customers toward maintaining what they already own.

→ www.ikea.com

#19

FRANCESCA

SLOW

INDUSTRY EXAMPLE

Ahrend provides refurbishment and reupholstery services for office furniture to meet evolving workplace requirements. Upgrading extends product life while keeping performance and appearance fit for purpose.

→ www.ahrend.com

#22

FRANCESCA

SLOW

INDUSTRY EXAMPLE

Vitra's Circle program (including resale channels) supports inspection, repair, and second-life sales. Service-based repair and resale extend the usable life of high-quality furniture.

→ www.vitra.com

#21

FRANCESCA

CLOSE

INDUSTRY EXAMPLE

Vestre uses recycled metals in outdoor furniture products where feasible. Recycled inputs reduce virgin extraction and can lower embodied emissions.

→ vestre.com

#24

FRANCESCA

SLOW

INDUSTRY EXAMPLE

Circular office fit-out ecosystems (e.g., via service providers) prioritize reuse and refurbishment rather than single-use interior projects. This reduces waste from frequent office churn and supports multi-user circulation models.

→ www.ahrend.com

#23

CLOSE

#25

Design mono-material components

Prefer single-material components to simplify recycling.

Focus: Product

CL-P-25

CLOSE

#26

Design for primary recyclability

Enable recycling into materials with equivalent properties (closed-loop potential).

Focus: Product

CL-P-26

CLOSE

#27

Design for easy disassembly

Enable separation of materials/components at end of use.

Focus: Product

CL-P-27

CLOSE

#28

Reuse/sell components & materials

Recover value from used products and components through resale or reuse.

Focus: Business Model

CL-BM-28

CLOSE

#29

Enable/incentivize product returns

Create take-back schemes to recover products after use.

Focus: Business Model

CL-BM-29

CLOSE

#30

Recycle in proper facilities

Ensure products are directed to appropriate recycling facilities and processes.

Focus: Business Model

CL-BM-30

FRANCESCA

CLOSE

INDUSTRY EXAMPLE

Aluminum-based furniture such as Emeco's Navy Chair can be recycled repeatedly with limited quality loss. High-quality recycling supports more closed material loops over multiple lifecycles.

→ www.emeco.net

#26

FRANCESCA

CLOSE

INDUSTRY EXAMPLE

Emeco chairs often use metal-dominant construction that reduces composite complexity. Mono-materiality can make dismantling and material recovery more straightforward.

→ www.emeco.net

#25

FRANCESCA

CLOSE

INDUSTRY EXAMPLE

IKEA's resale initiatives support recirculation of used furniture into second-life markets. Resale keeps products in use and reduces demand for new production.

→ www.ikea.com

#28

FRANCESCA

CLOSE

INDUSTRY EXAMPLE

USM Haller furniture can be dismantled into standardized components for reuse and sorting. Disassembly supports component reuse and higher-value material recovery.

→ www.usm.com

#27

FRANCESCA

CLOSE

INDUSTRY EXAMPLE

Steelcase provides guidance and programs to support responsible end-of-use handling of office furniture. Proper recycling increases material recovery and reduces landfill or incineration.

→ www.steelcase.com

#30

FRANCESCA

CLOSE

INDUSTRY EXAMPLE

Ahrend offers take-back options for office furniture to enable reuse, refurbishment, or proper recycling. Structured returns improve recovery rates and quality of material flows.

→ www.ahrend.com

#29

CLOSE

#31

Build local waste-to-product loops

Turn local waste streams into new products through local loops.

Focus: Ecosystem

CL-E-31

CLOSE

#32

Engage in industrial symbiosis

Exchange by-products and resources among organizations to reduce waste.

Focus: Ecosystem

CL-E-32

REGENERATE

#33

Design with renewable materials

Use renewable and low-carbon materials, considering sustainable sourcing and end-of-life.

Focus: Product

RE-P-33

REGENERATE

#34

Design self-charging products

Integrate renewable energy harvesting into products where relevant.

Focus: Product

RE-P-34

REGENERATE

#35

Design with living materials

Use bio-grown or living materials where appropriate.

Focus: Product

RE-P-35

REGENERATE

#36

Design with non-toxic materials

Avoid hazardous substances to reduce harm and support safe material cycles.

Focus: Product

RE-P-36

FRANCESCA

CLOSE

INDUSTRY EXAMPLE

Kvadrat Really exemplifies cross-sector collaboration by valorizing textile waste into new material products. Industrial symbiosis can stabilize feedstock access and improve circular material flows.

→ www.kvadrat.dk

#32

FRANCESCA

CLOSE

INDUSTRY EXAMPLE

Kvadrat Really converts textile waste into boards used for interiors and furniture applications. This creates a higher-value loop that keeps materials in use and out of disposal streams.

→ www.kvadrat.dk

#31

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

Include's Steora solar smart bench integrates solar energy to provide charging and lighting in public spaces. By generating its own electricity, it reduces reliance on grid power for these functions.

→ www.include.eu

#34

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

Artek produces many products in solid birch, a renewable material when sourced from responsibly managed forests. Wood can store biogenic carbon and, with good design, support long service life and reuse.

→ www.artek.fi

#33

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

IKEA publishes and updates chemical requirements for products and materials to reduce hazardous substances. Non-toxic inputs improve safety for users and support cleaner recycling and reuse.

→ www.ikea.com

#36

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

Ecovative develops mycelium-based materials that are being explored in design applications including interiors. Bio-grown materials can reduce reliance on petrochemical-based foams and composites.

→ www.ecovative.com

#35

REGENERATE

#37

Produce/process with renewable energy

Shift production and processing to renewable energy sources.

Focus: Business Model

RE-BM-37

REGENERATE

#38

Power transportation with renewables

Reduce logistics emissions by shifting to renewable/low-carbon transport energy.

Focus: Business Model

RE-BM-38

REGENERATE

#39

Power product use with renewables

Enable product use to be powered by renewable energy where relevant.

Focus: Business Model

RE-BM-39

REGENERATE

#40

Embed renewable infrastructure

Integrate renewables into buildings and infrastructure to support broader system decarbonization.

Focus: Ecosystem

RE-E-40

REGENERATE

#41

Recover nutrients/materials

Recover and reuse renewable resource flows and reclaimed materials.

Focus: Ecosystem

RE-E-41

REGENERATE

#42

Regenerate ecosystems

Contribute to restoring ecosystems that supply resources or absorb impacts.

Focus: Ecosystem

RE-E-42

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

IKEA has committed to and expanded electric delivery options in many markets to reduce transport emissions. Lower-carbon logistics is particularly relevant for bulky, heavy furniture products.

→ www.ikea.com #38

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

Vestre's The Plus factory emphasizes low-emission production and integration of renewable energy strategies. Renewable-powered manufacturing can reduce embodied carbon in furniture products.

→ vestre.com/theplus #37

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

Material passport and building circularity platforms (e.g., Madaster) are often used in low-carbon building strategies that include renewables. While not an energy provider itself, such infrastructure supports planning for regenerative built environments.

→ madaster.com #40

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

Solar-integrated urban furniture like Steora benches can power lighting and device charging via solar energy. This demonstrates how furniture in public spaces can provide services with renewable energy.

→ www.include.eu #39

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

FSC promotes responsible forest management that supports biodiversity and ecosystem health in wood supply chains. For furniture companies using wood, such initiatives help protect long-term resource availability.

→ fsc.org #42

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

Mater uses reclaimed and waste-sourced materials in furniture, including reclaimed wood and recycled inputs in selected lines. Using reclaimed materials reduces demand for virgin resources and keeps materials in productive use.

→ www.materdesign.com #41

REGENERATE

#43

Sustain ecosystem services

Protect ecosystem functions (e.g., forestry services) that underpin materials and value chains.

Focus: Ecosystem

RE-E-43

INFORM

#44

Use AI to develop circular materials

Use AI to analyze material data and accelerate development of materials with circular properties.

Focus: Product

IN-P-44

INFORM

#45

Virtualize

Deliver utility digitally instead of physically to reduce material demand.

Focus: Product

IN-P-45

INFORM

#46

Design connected products

Integrate sensors/connectivity so products can send and receive data.

Focus: Product

IN-P-46

INFORM

#47

Use product-in-use data

Use usage data to improve durability, efficiency, and service design.

Focus: Business Model

IN-BM-47

INFORM

#48

Track resource intensity

Track energy/material use during product operation to improve efficiency.

Focus: Business Model

IN-BM-48

FRANCESCA

INFORM

INDUSTRY EXAMPLE

AI tools used in design and engineering software can support exploration of lower-impact and circular material options for products. In furniture, this can inform choices around composites, bio-based materials, and recyclability constraints during design.

→ www.autodesk.com

#44

FRANCESCA

REGENERATE

INDUSTRY EXAMPLE

Forest certification schemes like FSC set standards that help sustain critical ecosystem services in managed forests. Sustaining these services supports resilient supply for wood-based furniture and interiors.

→ fsc.org

#43

FRANCESCA

INFORM

INDUSTRY EXAMPLE

Steelcase offers workplace solutions that can incorporate sensing to understand space use and occupancy patterns. Connected products can support better maintenance planning and longer, more efficient use.

→ www.steelcase.com

#46

FRANCESCA

INFORM

INDUSTRY EXAMPLE

IKEA Place (AR) helps customers visualize furniture in their home before buying. Better fit decisions can reduce returns, waste, and unnecessary purchases.

→ www.ikea.com

#45

FRANCESCA

INFORM

INDUSTRY EXAMPLE

Signify (Philips Lighting) uses connected lighting to track performance and energy use in service models. When integrated into office environments, this supports more resource-efficient operation of interiors.

→ www.signify.com

#48

FRANCESCA

INFORM

INDUSTRY EXAMPLE

Herman Miller and other office providers offer workplace insights that can inform how products perform in real settings. In-use data can guide redesign, maintenance intervals, and circular service models.

→ www.hermanmiller.com

#47

INFORM

#49

Track condition/location

Track condition, location, and availability to enable maintenance and capacity maximization.

Focus: Business Model

IN-BM-49

INFORM

#50

Market circular flows via platforms

Use online platforms to market used products, components, and materials.

Focus: Ecosystem

IN-E-50

INFORM

#51

Build material database ecosystems

Create databases/passports describing materials/components to support reuse and recovery.

Focus: Ecosystem

IN-E-51

INFORM

#52

Co-create via online platforms

Use online platforms to crowdsource and co-create circular products and information.

Focus: Ecosystem

IN-E-52

INFORM

#53

Use AI to optimize circular infrastructure

Use AI to improve collection, sorting, and logistics for circular systems.

Focus: Ecosystem

IN-E-53

INFORM

#54

Operate service ecosystems via platforms

Use digital platforms to coordinate multi-actor service ecosystems.

Focus: Ecosystem

IN-E-54

FRANCESCA

INFORM

INDUSTRY EXAMPLE

IKEA's resale and marketplace initiatives support buying and selling used IKEA products. Digital platforms can improve matching between supply and demand for second-life furniture.

→ www.ikea.com

#50

FRANCESCA

INFORM

INDUSTRY EXAMPLE

NORNORM manages furniture assets across customers, which typically requires tracking inventory, condition, and allocation. Tracking supports timely refurbishment and efficient redistribution to new users.

→ www.nornorm.com

#49

FRANCESCA

INFORM

INDUSTRY EXAMPLE

OpenDesk enables distributed furniture design and local making through an online platform. Platform coordination can support localized production and design iteration with circular goals.

→ www.opendesk.cc

#52

FRANCESCA

INFORM

INDUSTRY EXAMPLE

Madaster provides a materials passport approach for buildings and interiors, documenting material composition and value. This information supports reuse, recovery planning, and residual value estimation.

→ madaster.com

#51

FRANCESCA

INFORM

INDUSTRY EXAMPLE

NORNORM operates a furniture subscription ecosystem that depends on platform coordination for orders, returns, and refurbishment cycles. Platform operation enables scalable circulation and monitoring across multiple stakeholders.

→ www.nornorm.com

#54

FRANCESCA

INFORM

INDUSTRY EXAMPLE

ZenRobotics develops AI-enabled waste sorting technology that can be relevant to mixed waste streams including bulky items. Better sorting and recovery can improve material capture from furniture and interior waste.

→ zenrobotics.com

#53