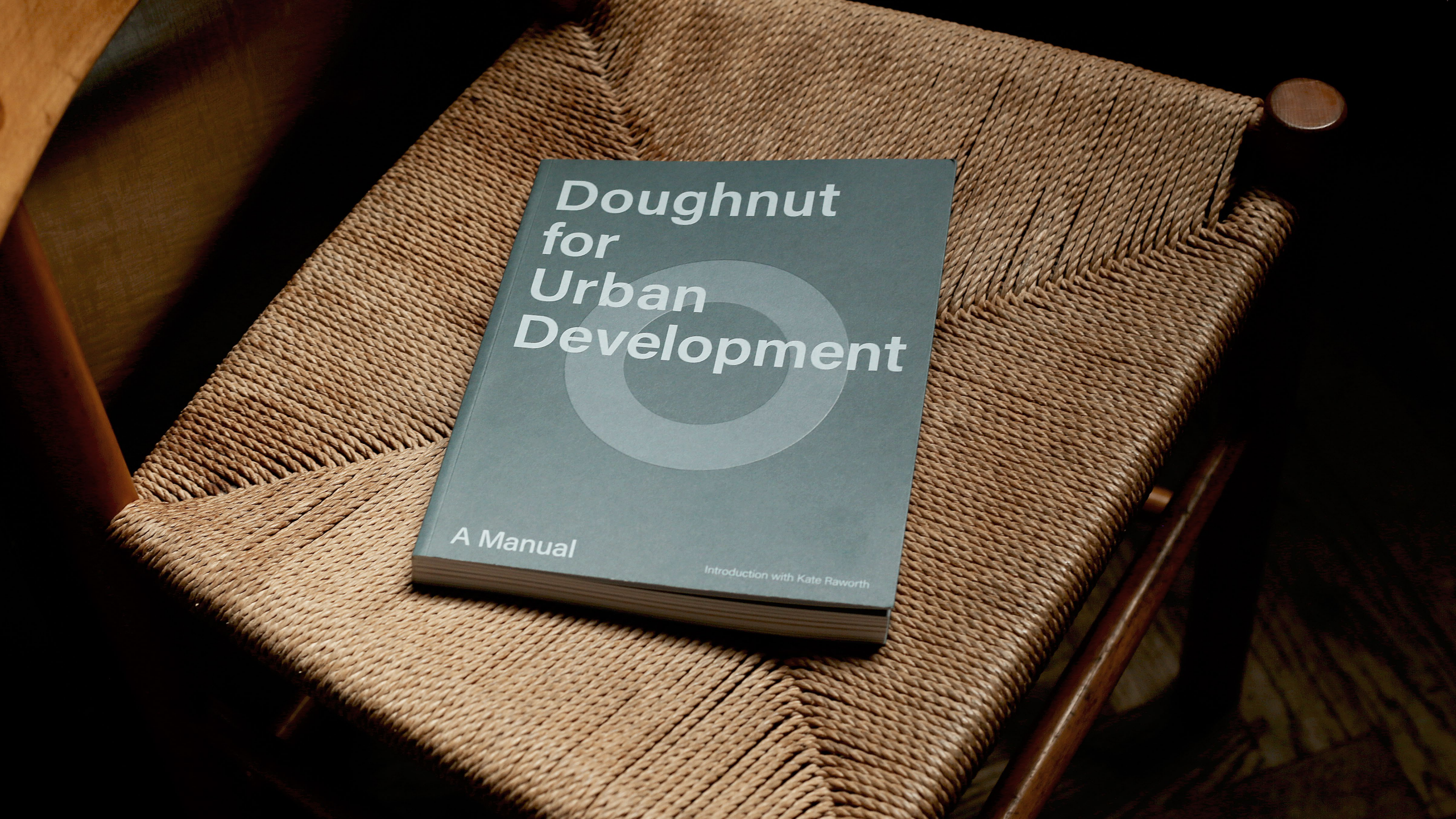




HOME.EARTH

WE DO HOMES THAT ARE PEOPLE AND PLANET POSITIVE

Home.Earth

A photograph of a book titled 'Doughnut for Urban Development' lying on a woven chair seat. The book cover is a muted teal color with a large, faint circular graphic in the center. The text is in a clean, white, sans-serif font. The chair is made of light-colored wood with a thick, textured woven seat. The background is dark and out of focus.

Doughnut for Urban Development

A Manual

Introduction with Kate Raworth

'What if it were possible to live well without trashing the planet? *Doughnut Economics* succinctly captures this tantalising possibility and takes up its challenge. Brimming with creativity, Raworth reclaims economics from the dust of academia and puts it to the service of a better world.'
Tim Jackson

'Can anyone seriously suppose that today's economic orthodoxies are going to bring the world back from the brink of chaos? We need to fundamentally rethink the way we create and distribute wealth, and Kate Raworth's *Doughnut Economics* provides an inspiring primer as to how we must now set about that challenge. I hope it ushers in a period of intense debate about the kind of economy we now so urgently need.'
Jonathon Porritt

'Drawing on a deep well of learning, wisdom and deep thinking, Kate Raworth has comprehensively reframed and redrawn economics. It is entirely accessible, even for people with no knowledge of the subject. I believe that *Doughnut Economics* will change the world.'
George Monbiot



DOUGHNUT ECONOMICS
KATE RAWORTH



DOUGHNUT ECONOMICS

Seven Ways to Think Like a 21st-Century Economist

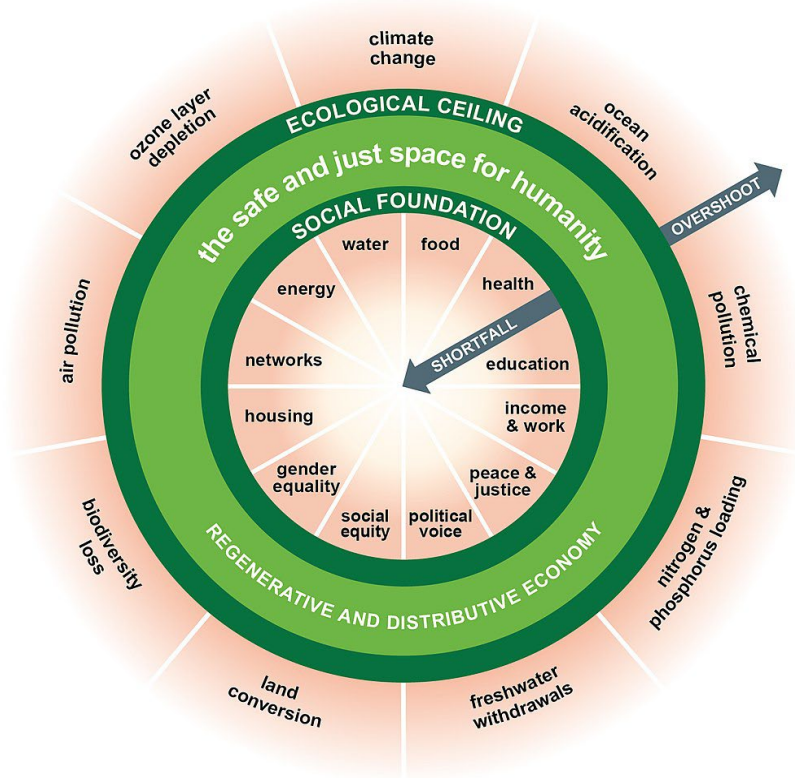


KATE RAWORTH

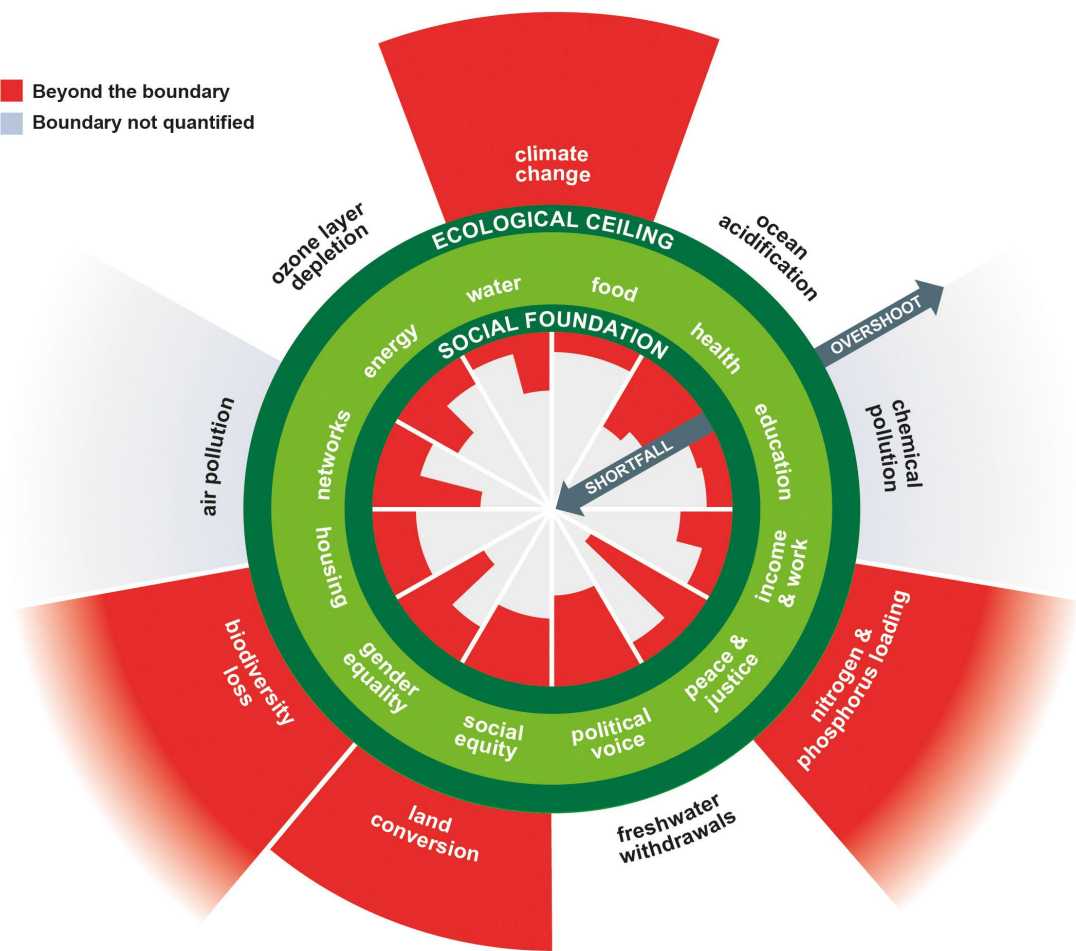
'I read this book with the excitement that the people of his day must have read John Maynard Keynes's *General Theory*. It is brilliant, thrilling and revolutionary.'
George Monbiot



Kate Raworth,
Co-founder and Conceptual Lead, DEAL



■ Beyond the boundary
 ■ Boundary not quantified





Doughnut
Design for
Business

05

OLD THINKING

How does the design of your business block transformative action?

Purpose

Networks

Governance

Ownership

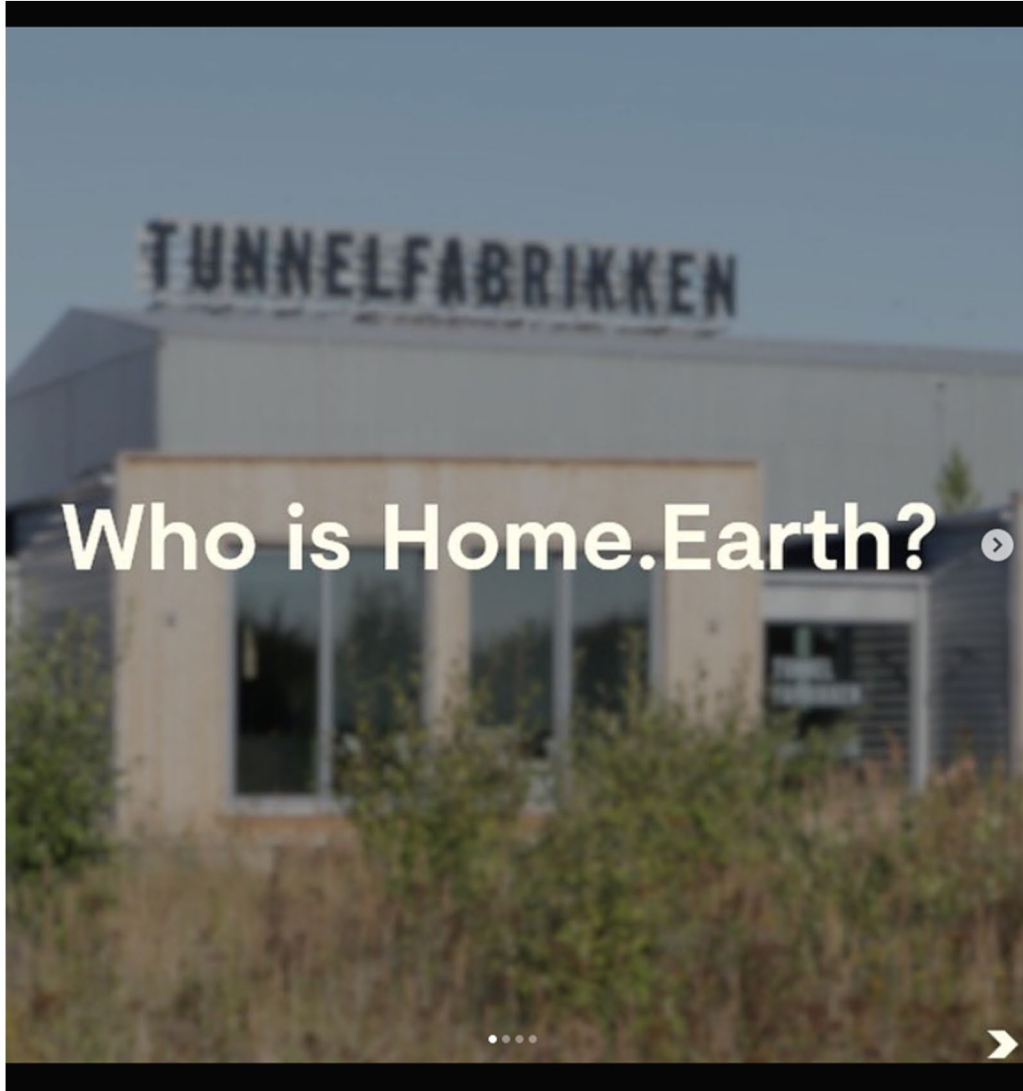
Finance

NEW THINKING

How could a redesign of your business unlock transformative action?







homedotearth



homedotearth Who is Home.Earth and what do we stand for?

We are a purpose-led real estate company dedicated to creating homes that are affordable, inclusive and sustainable. By developing urban communities, with integration at its core, we try to enhance life for everyone in the long-term. Our purpose is supported by values of courage, trust, care and integrity, which guides us in our daily operations - ensuring that real estate can be changed to serve the whole. 🏡🌱

34 w



Liked by benderlassen and others

MARCH 7

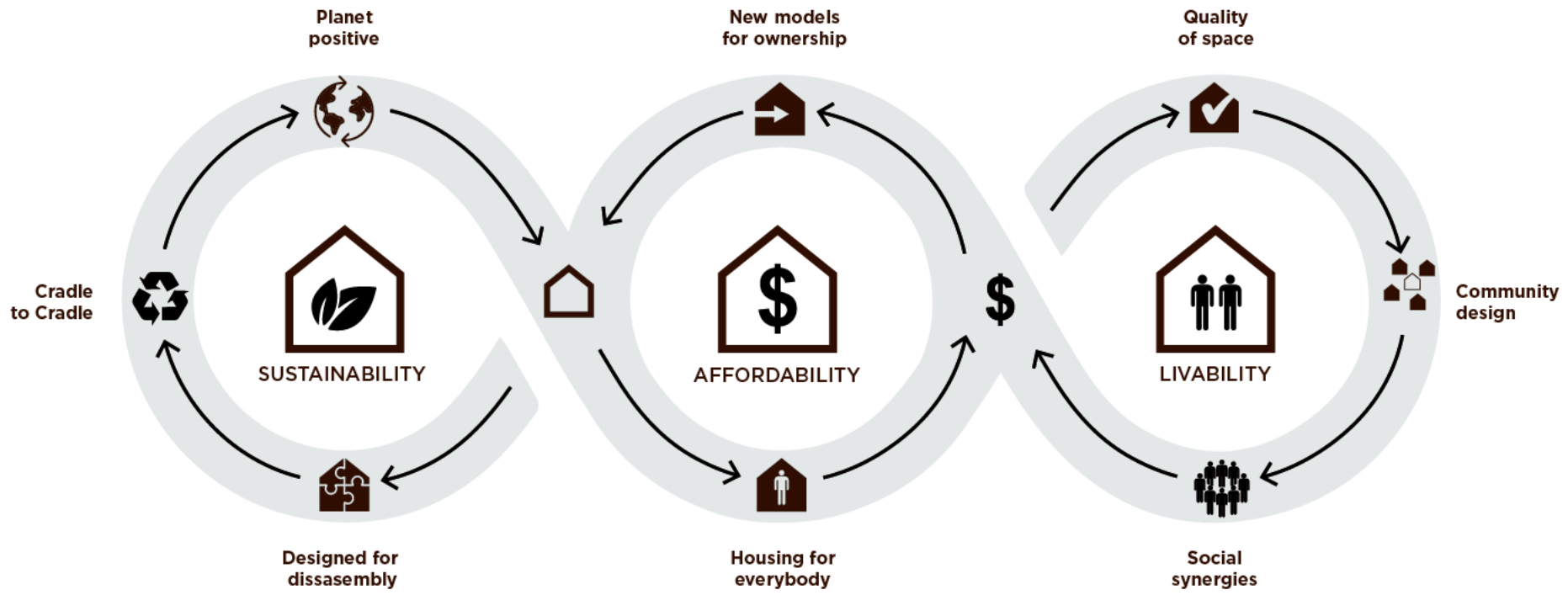


Add a comment...

Post







Our team has the track record to drive positive change and capitalize on what is a massive business opportunity



Kasper Guldager Jensen

Ex-Senior Partner at 3XN Architects and Founder of GXN innovation, a leading research company on innovation and climate transition in the built environment



Rasmus Nørgaard

Co-founder and ex-CIO of NREP - now Urban Partners - that has grown to become one of Northern Europe's largest real estate investors and developers



Carel van Houte

Ex-Chief Design & Construction Officer at CitizenM Hotels. Industrial designer by background and a leading expert on modular construction



Rasmus Juul-Nyholm

Founder & ex-CEO of Cobblestone, one of Denmark's largest property and asset managers. Founder and Chair person of PropTech Denmark

Innovator

Investor

Developer

Operator

An experienced and diverse team to confront the challenge

(16 FTE's, 5 women and 11 men, 8 nationalities, 3 FTE's paid by research grants*)

*Full team shown in appendix

Board members



Allan Polack, Chair

35+ years of experience from finance. Ex-CEO of PFA Pension, and formerly head of Nordea Investment Mgmt.



Maya Færch

Expert in systems transformation of the built environment. Experience from Laudes Found., Lendager, SDGlead and PwC



Nicole Maarsen

20+ years of real estate experience from Maarsen Groep, Synthrus Achmea, ING, Triodos and ULI



Annabel Short

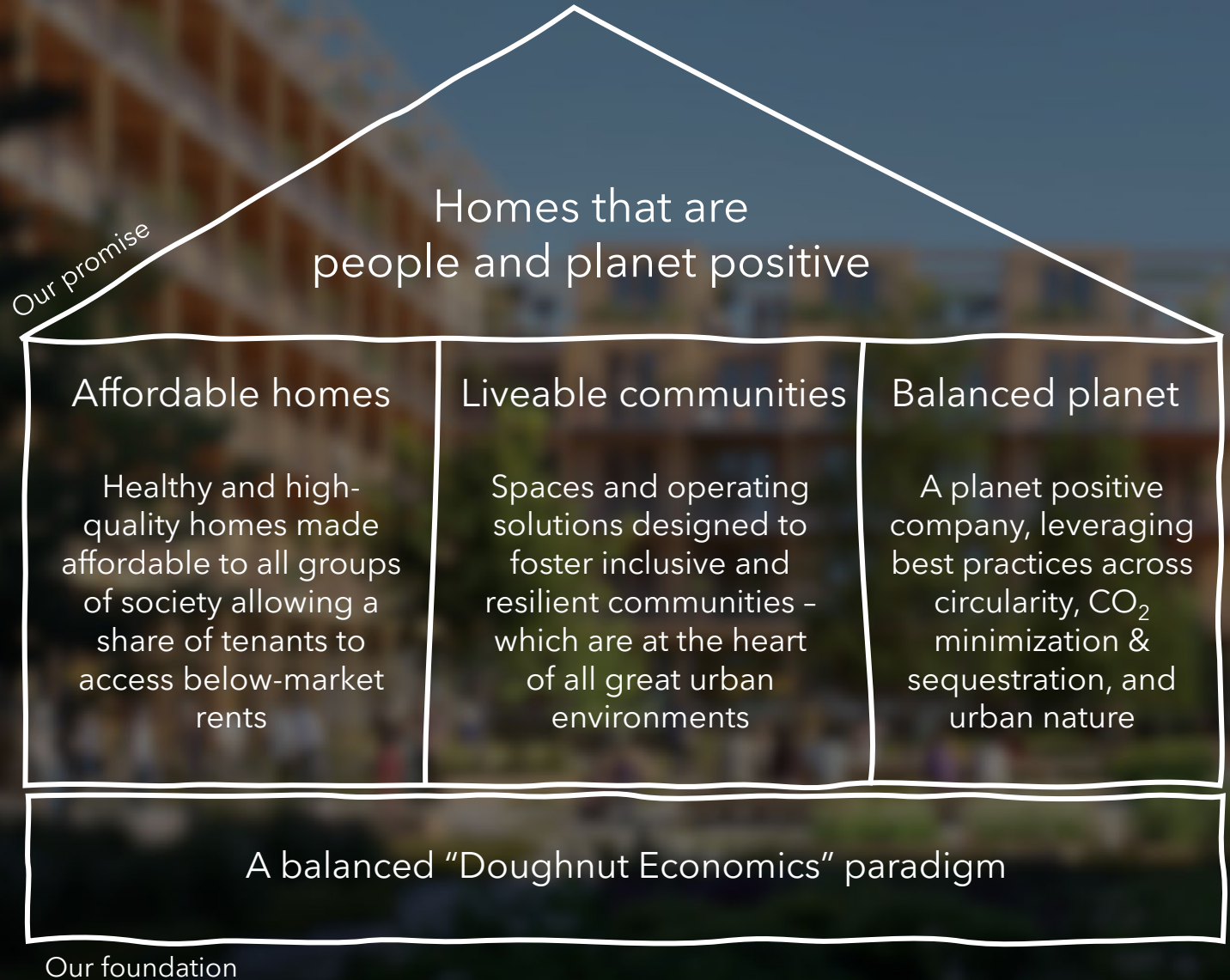
Senior Advisor at Institute for Human Rights and Business and expert on human rights in the built environment

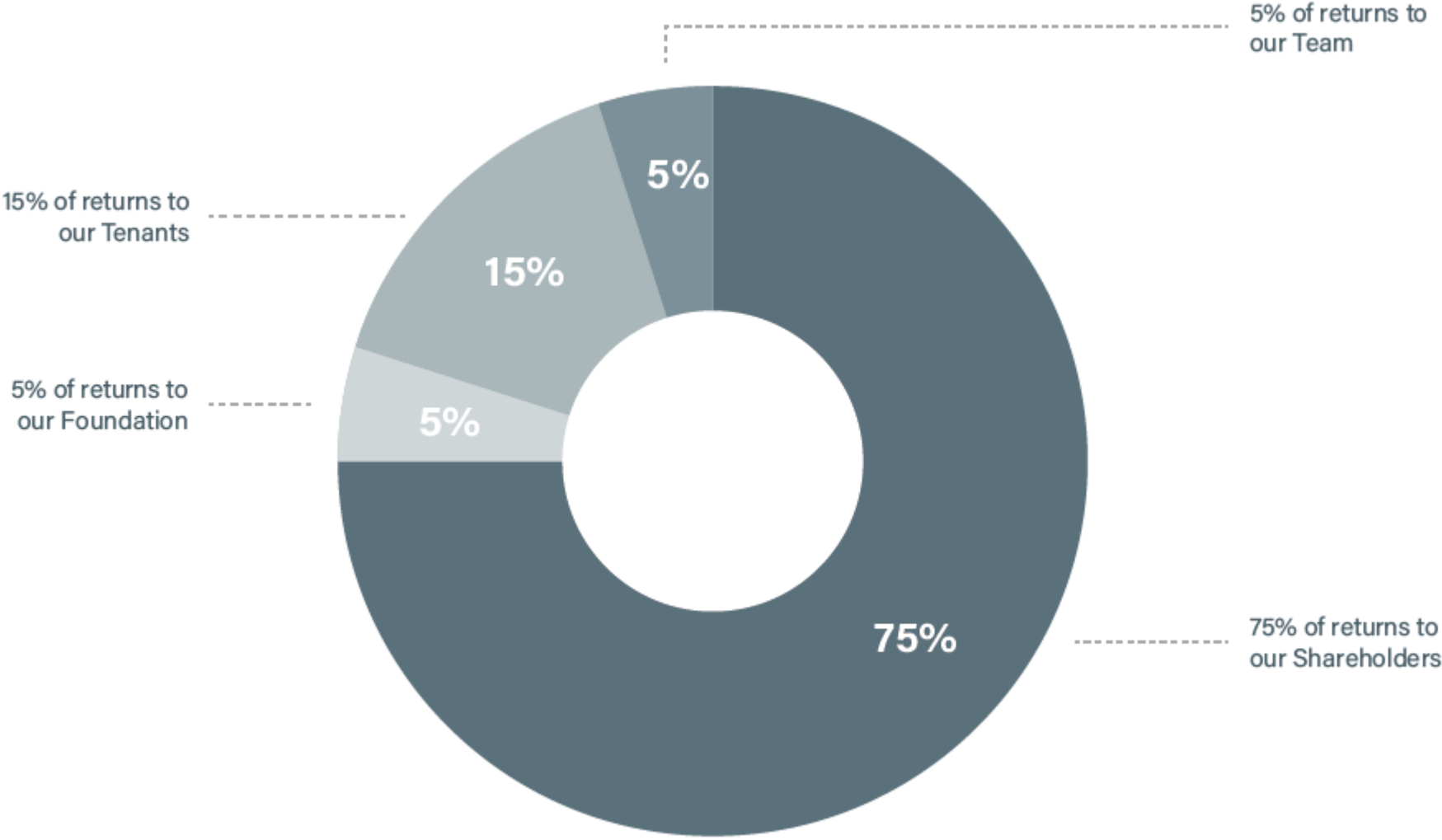


Gustaf Lilliehöök

Partner at NREP focused on impact management and investor relations. Background from the World Bank

Sketching our vision:
A blueprint for
sustainable and
inclusive urban
development





Rethinking
tenantship



Making
Tenants Co -
owners



Home.Earth



Rethinking
tenantship

No deposits

Diverse tenant
communities

Making
Tenants Co -
owners

Home.Earth



Rethinking
tenantship

No deposits

Diverse tenant
communities

Making
Tenants Co -
owners

Community areas

Tenant involvement
and co-creation

Home.Earth





**Rethinking
tenantship**

Indoor climate
sensors

No deposits

Diverse tenant
communities

**Building
Passport**

**Making
Tenants Co -
owners**

**Design for
Circularity**

Great access to
public transport

Tenant involvement
and co-creation

Community areas

**Material
Filter**

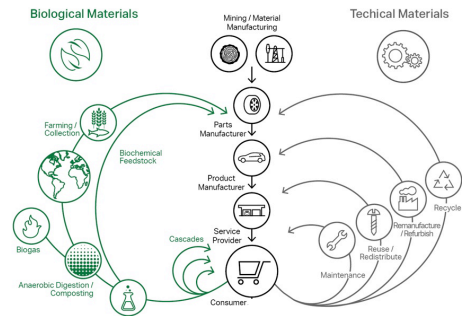
Active ground floors
to enable diversity,
culture and
community

**Increased
Biodiversity**

Home.Earth



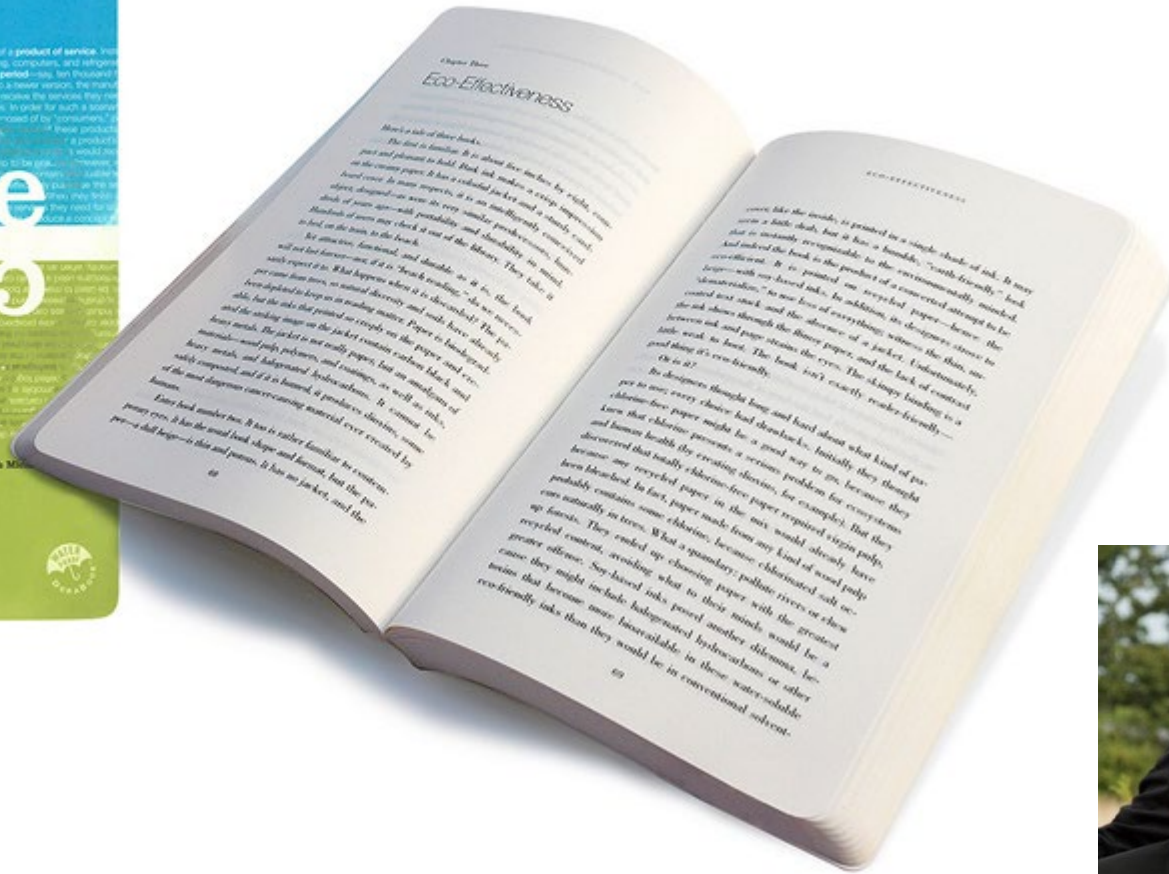
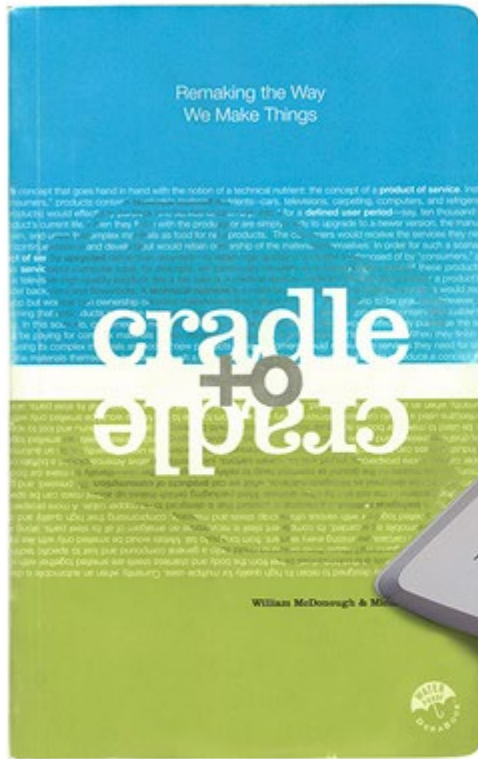
Cradle to Cradle
Manual
2013



Building a Circular
Future
2016



Doughnut for Urban
Development
2023



CRADLE TO
CRADLE®
I DET
BYGGEDE
MILJØ



EN MANUAL TIL DEN DANSKE BYGGEINDUSTRI

INTRODUKTION

Hvad er Cradle to Cradle?

C2C er en revolutionerende designstrategi, der blev udviklet af kemikeren Michael Braungart og arkitekten William McDonough op igennem 1990'erne. Strategien er beskrevet i bogen 'Cradle to Cradle: Remaking the Way We Make Things'.*

C2C er en reaktion på det som Braungart og McDonough kalder for 'Cradle to Grave' tilgangen, der udgør et designparadigme udviklet i løbet af industrialiseringen. 'Cradle to Grave' tilgangen har grundlæggende fejlet ved at anskue menneskelig produktion som adskilt fra naturen og ved at betragte jordens ressourcer som udtømmelige. Dette har resulteret i de enorme klima-, forurenings-, affalds- og ressourceproblemer, som verden står overfor i dag, og som over tid vil destabilisere priser og sociale forhold.

C2C henter inspiration i naturens integrerede systemer, hvor alting er næring for noget nyt, og al vækst produceres af vedvarende energikilder. Konceptet introducerer en tankegang, hvor produktion ikke efterlader affald og forurening – men i stedet bidrager positivt til de naturlige systemer. C2C filosofien handler således grundlæggende om at forbedre kvaliteten af det, vi producerer, så det i stedet for at være 'mindre dårligt' bliver 'mere godt'.

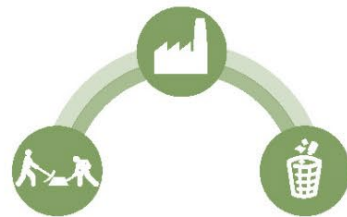


Diagram 1: Cradle to Grave - I dag brændes de fleste materialer eller deponeres i naturen efter endt brug

Grundlæggende principper

AFFALD=FØDE

I naturen findes affald ikke, da alt er næring for noget andet. Det første C2C princip handler derfor om at anskue alle materialer som en potentiel ressource for enten det biologiske eller det tekniske kredsløb.

BRUG VEDVARENDE ENERGI

Alle biologiske systemer drives af energi fra solen. Det andet C2C princip handler om at basere produktion og bygninger på energi fra vedvarende kilder såsom sol og vind. Disse energikilder er udtømmelige.

VÆRDSÆT MANGFOLDIGHED

Inspireret af naturens mangfoldighed og evolutionære udvikling tilskynder det tredje C2C princip os til at værdsætte mangfoldighed af naturens arter, menneskeskabte kulturer og løsninger.

Disse tre principper er fundamentet for C2C. Principperne definerer og understøtter to metabolismer for alle materialer – det biologiske kredsløb og det tekniske kredsløb.

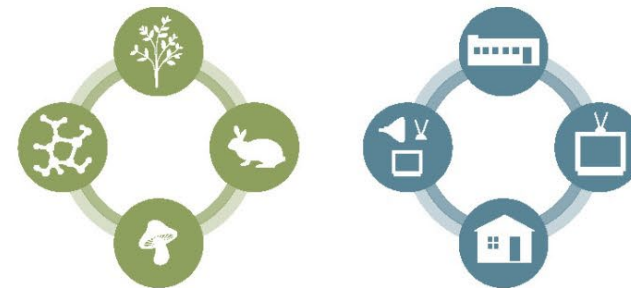


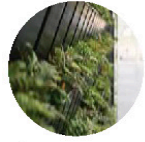
Diagram 2: Det biologiske og tekniske kredsløb, hvor materialer enten kan bionedbrydes eller recirkuleres i nye produkter



1 WOOD CONSTRUCTION



2 ENERGY FACADE AND ROOF



3 INTEGRATED GREEN



4 ALGAE WATER CLEANING



5 INTELLIGENT INDOOR CLIMATE



6 AIR CLEANING CARPETS



7 ACTIVE GYPSUM PLASTER



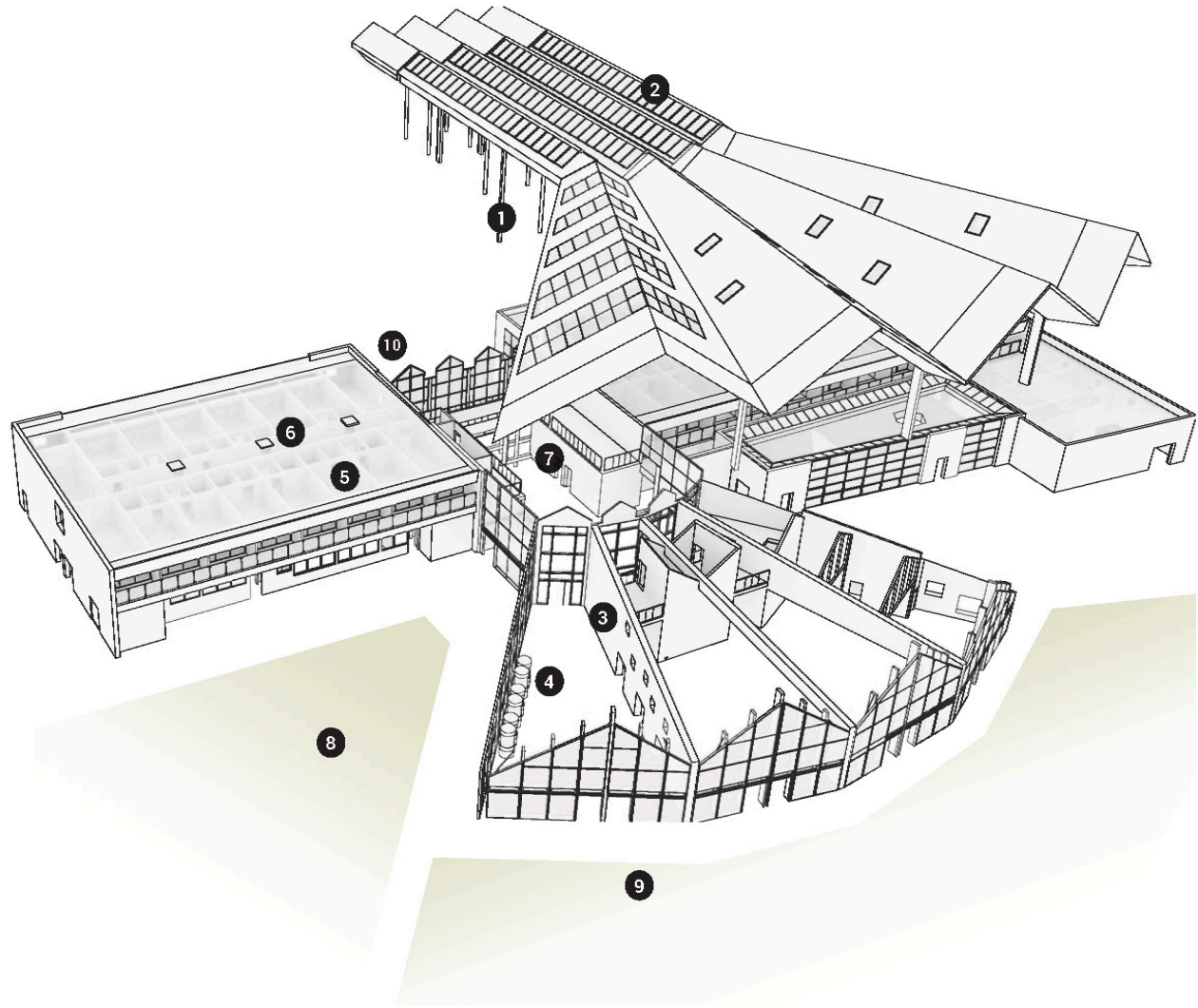
8 EARTH LUNG



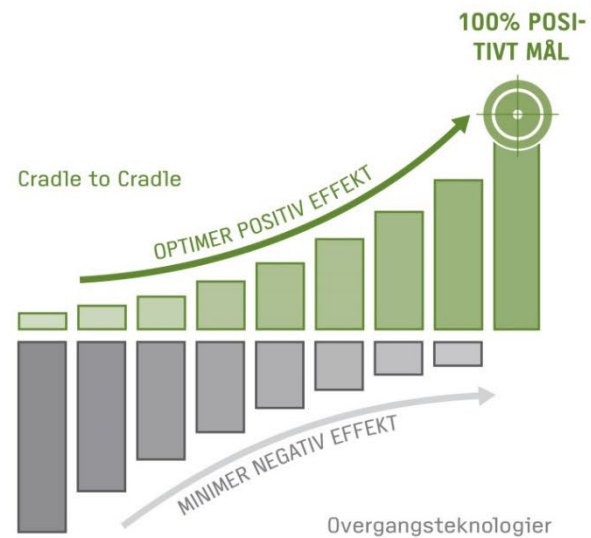
9 BITUMEN TREE LANDSCAPE



10 UPCYCLED GLASS PAVEMENT



		Grønne niveauer			
		1: Konventionel	2: Best Practice	3: Eco-Effective	4: Regenerativ
 Materiale kredsløb	Materiale Screening	■	■	■	■
	Genindvinding af Tek. Næring	■	■	■	■
	Genindvinding af Bio. Næring	■	■	■	■
	Indeklima og Luftkvalitet	■	■	■	■
 Vedvarende Energi	Optimeret Energiforbrug	■	■	■	■
	Installationer	■	■	■	■
	Energikvalitet	■	■	■	■
	Vedvarende Produktion	■	■	■	■
 Øgede Biodiversitet	Skabelse af Grønne Områder	■	■	■	■
	Habitat	■	■	■	■
 Grøn Mobilitet	Fodgænger + Cykel Adgang	■	■	■	■
	Vedvarende Drevet Transport	■	■	■	■
 Rent Vand	Regnvands Infiltrering	■	■	■	■
	Optimeret Drikkevandsforbrug	■	■	■	■
	Økologisk Spildevandsrensning	■	■	■	■



Tre faser mod et 100% godt mål

FASE 1 - ANALYSE

Værdier formuleres som målsætninger i analysefasen og sigter mod en intention om et 100% positivt mål.

FASE 2 - STRATEGIER

En række specifikke strategier opstilles, der enten kan bruges til at minimere negative effekter eller maksimere positive effekter. Hver strategi gøres operationel gennem opstilling af en række konkrete redskaber.

FASE 3 - MÅLBARE SKRIDT

En række målbare skridt bør formuleres, for at kontrollere, hvorvidt elementet løbende skaber den forventede værdi og er gavnligt både socialt, økonomisk og miljømæssigt.





Kan vi bygge i morgen
med affald fra i dag?





EENTILEEN

GXN

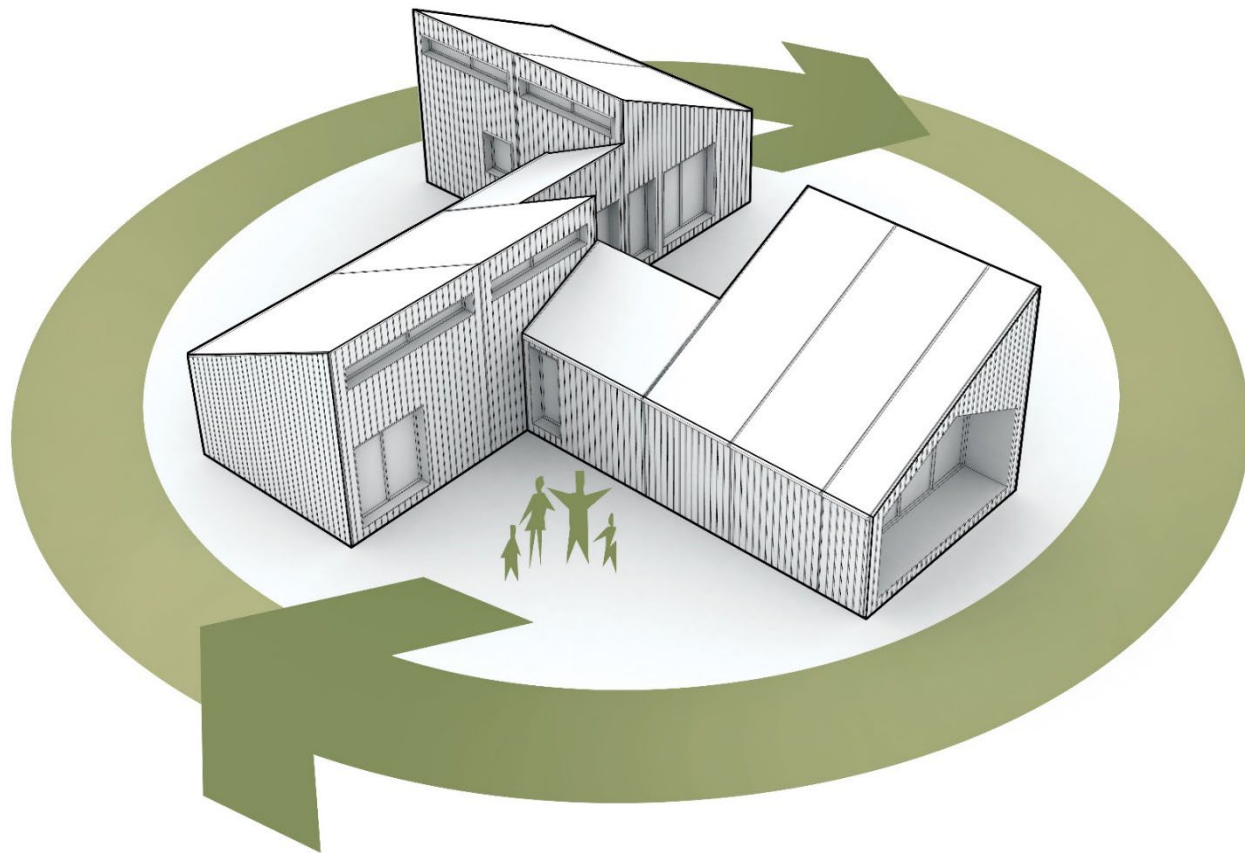


Deloitte.

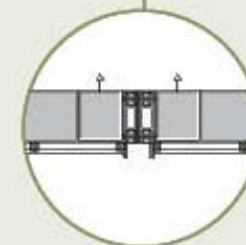
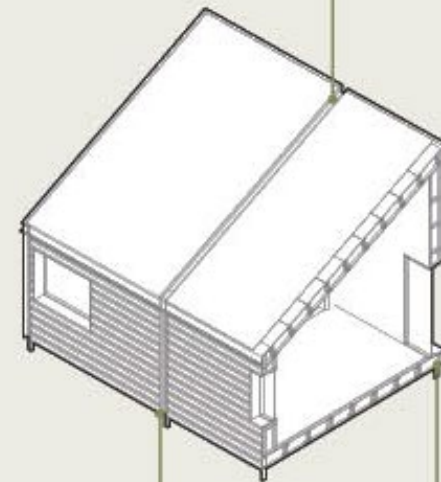
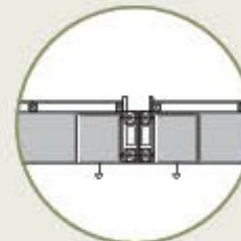


TEKNOLOGISK
INSTITUT





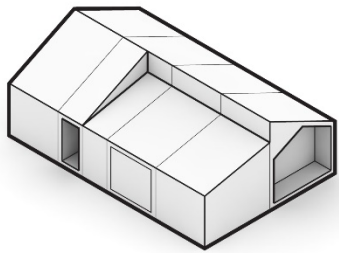
Tagdetalje



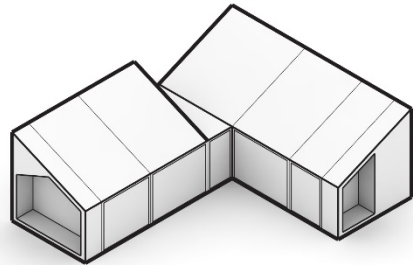
Guilvdetalje



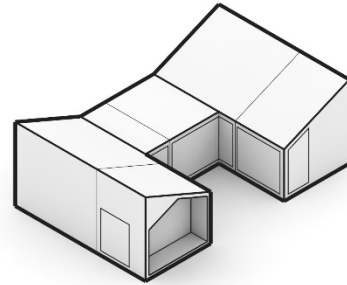
Fundamentdetalje



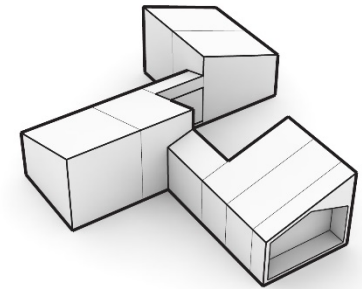
K | Kompakt | **120m²**



V | Vinkel | **109m²**



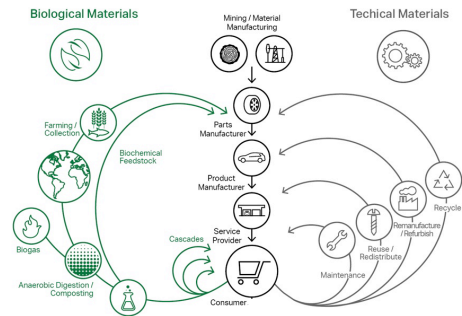
U | Gårdhavehus | **118m²**



X | Åben Form | **137m²**



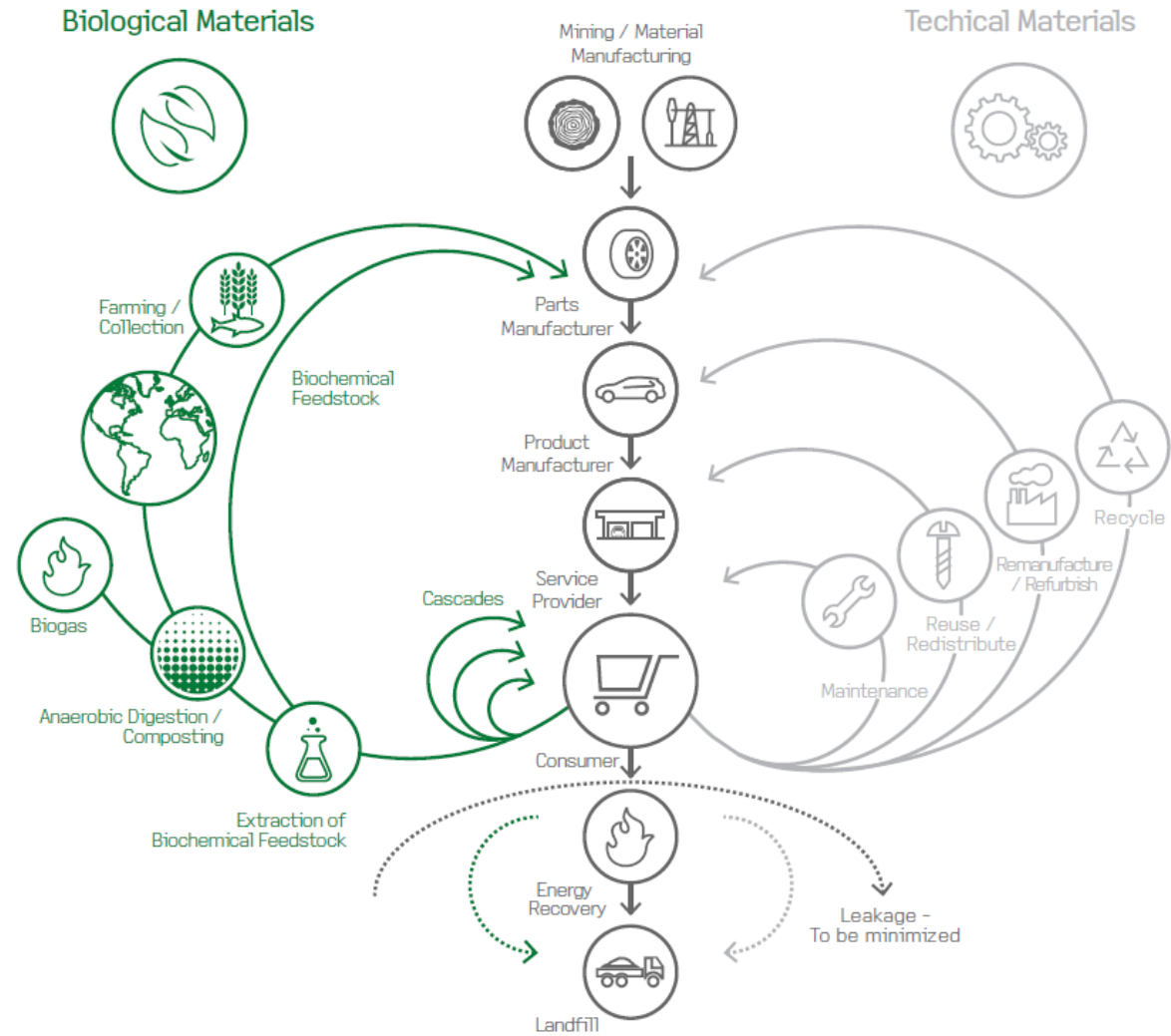
Cradle to Cradle
Manual
2013

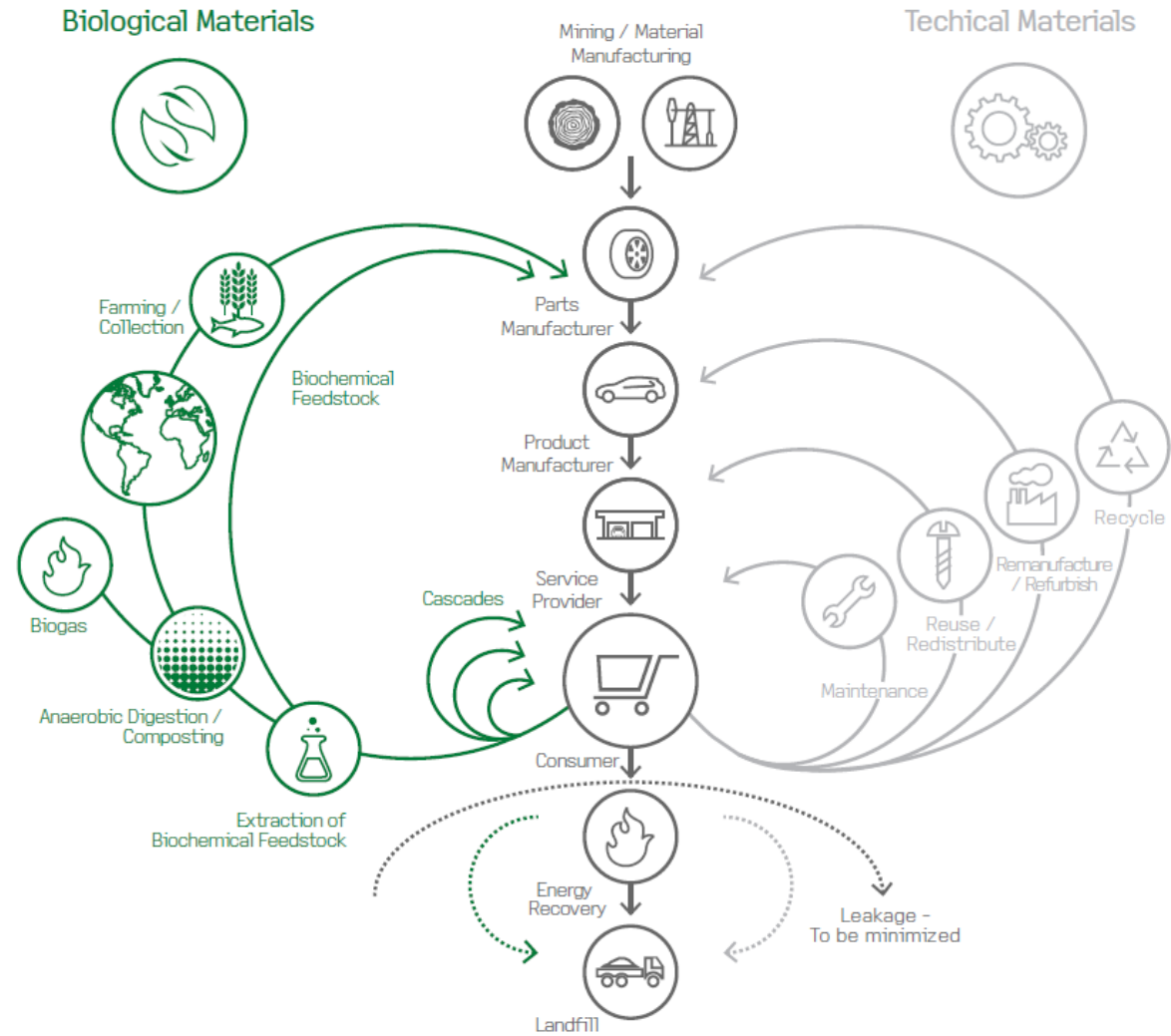


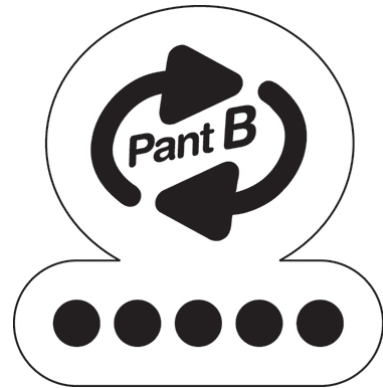
Building a Circular
Future
2016



Doughnut for Urban
Development
2023









Building a
Circular Future





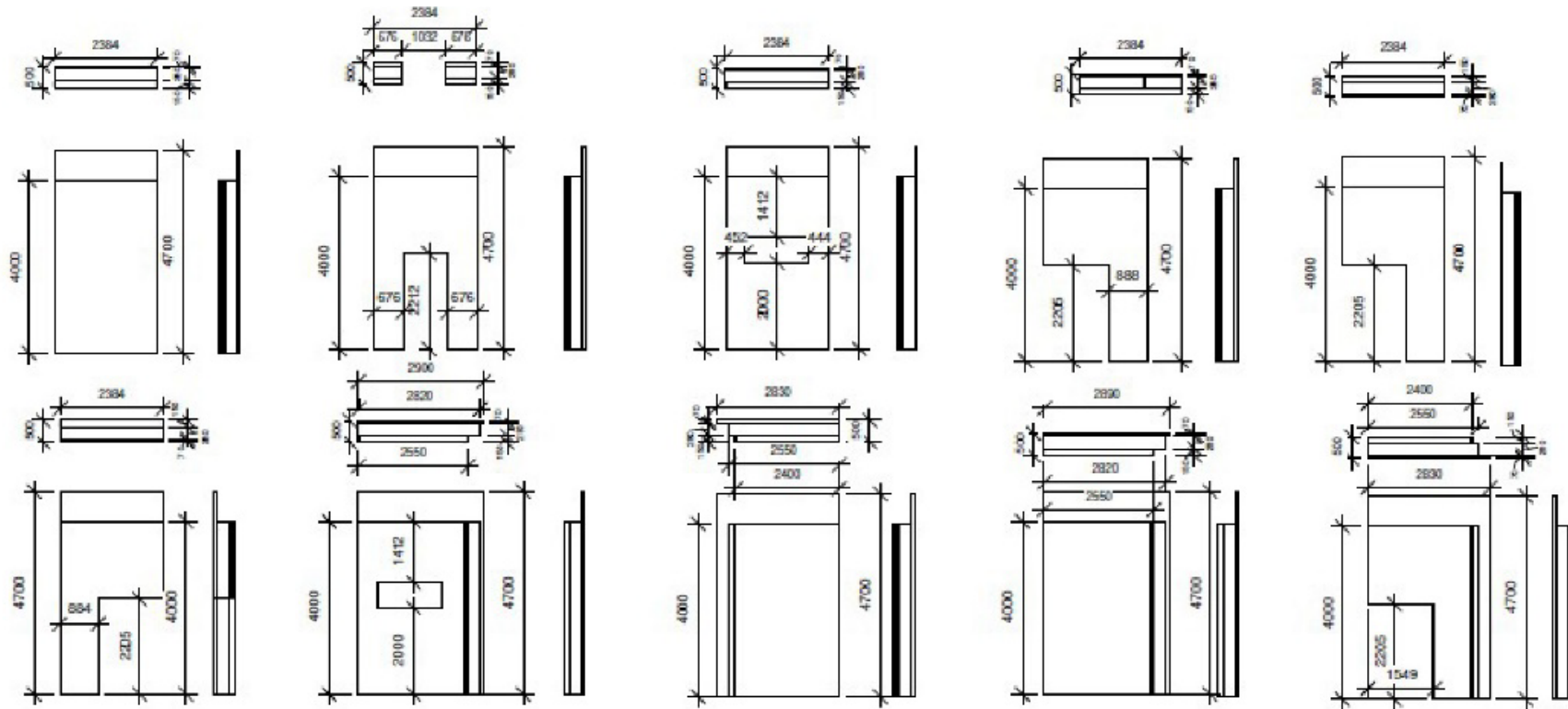


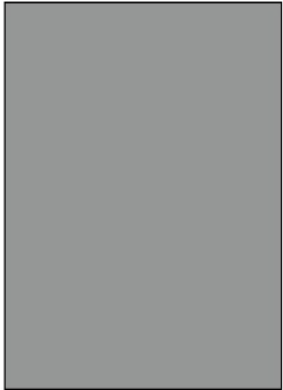
Kan vi genanvende
værdi og ikke volumen?

Exposition / Exterior









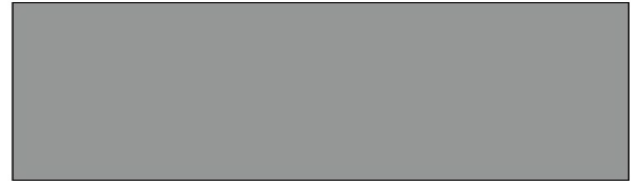
Wall

+

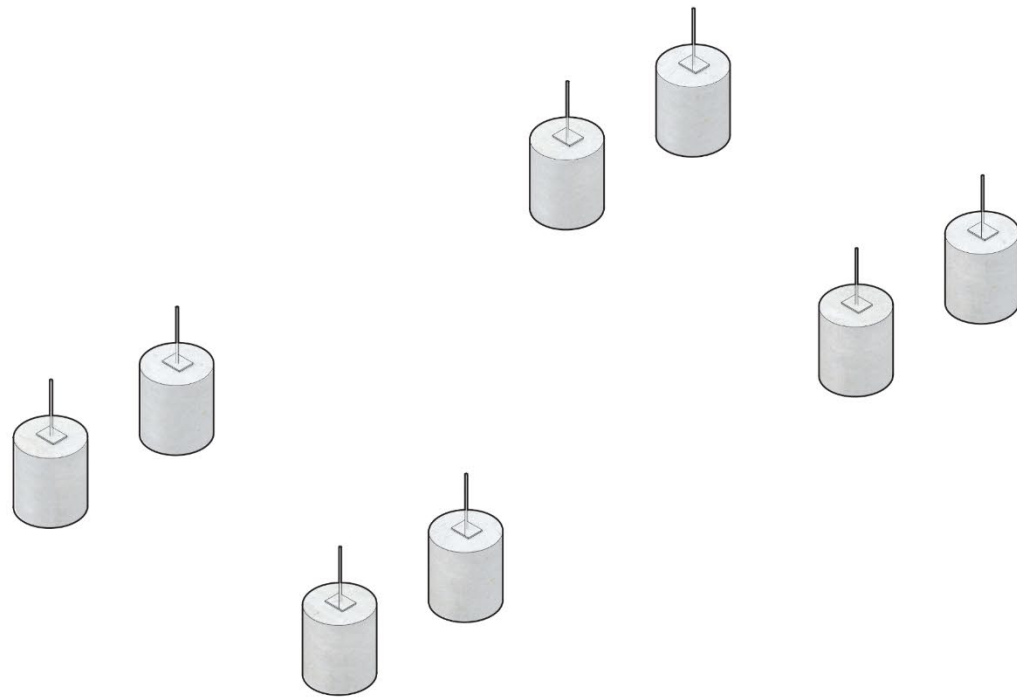


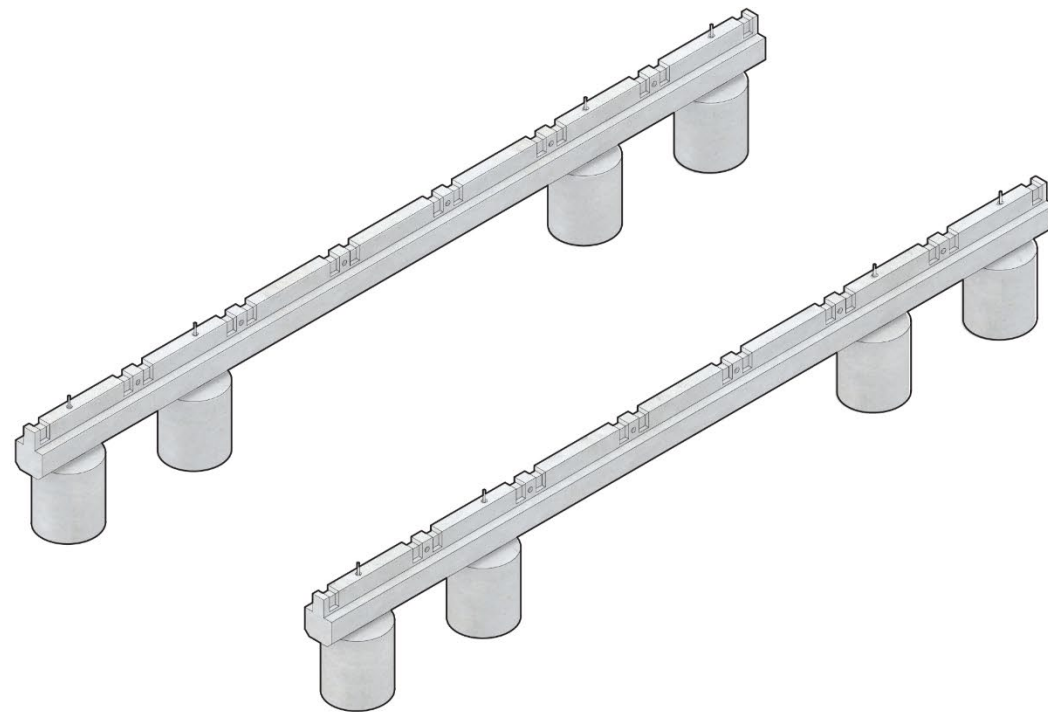
Beam

+

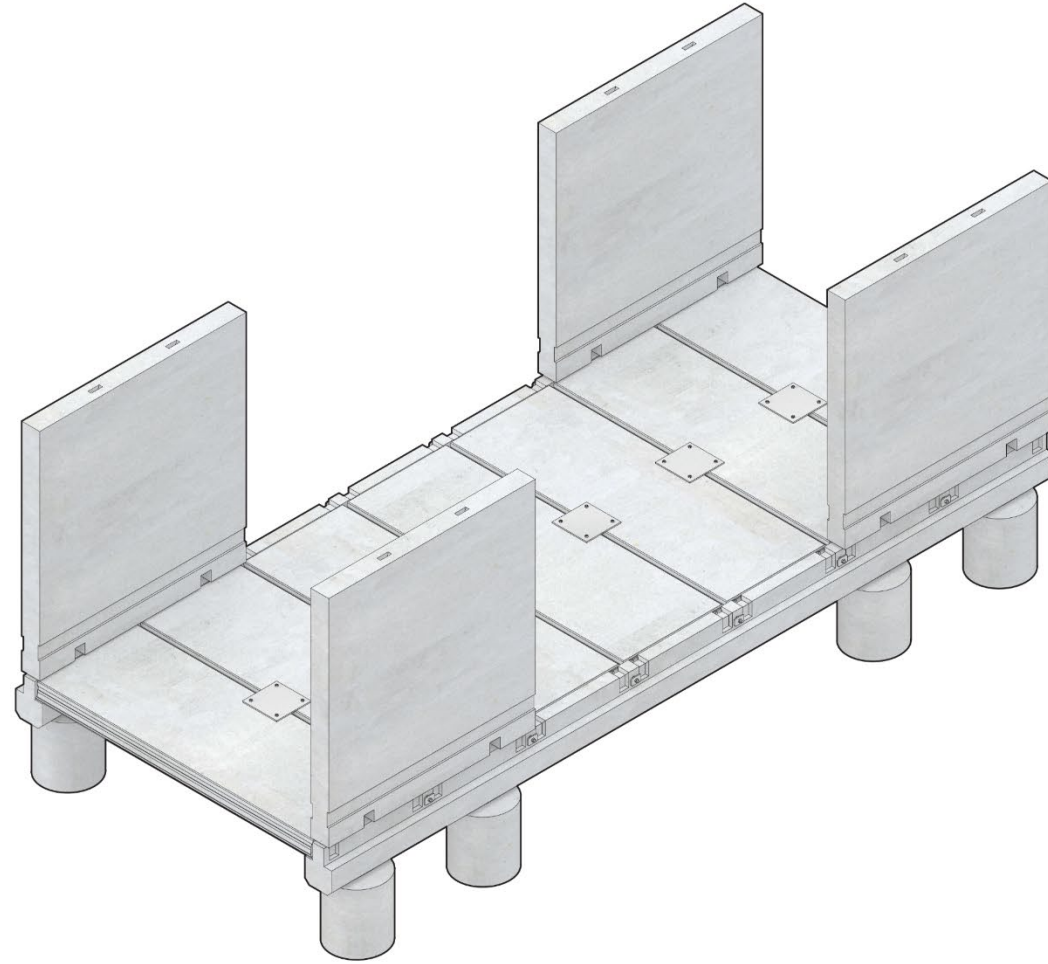


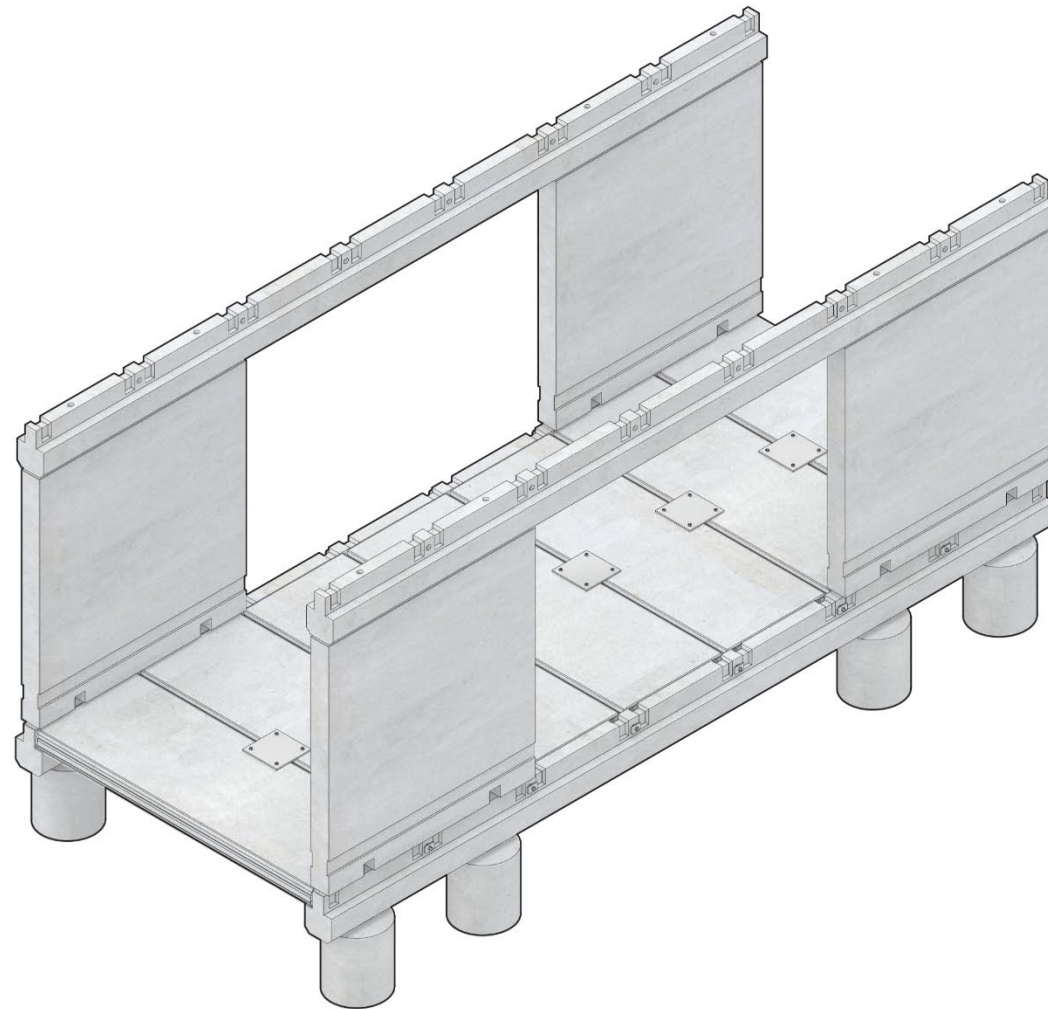
Deck

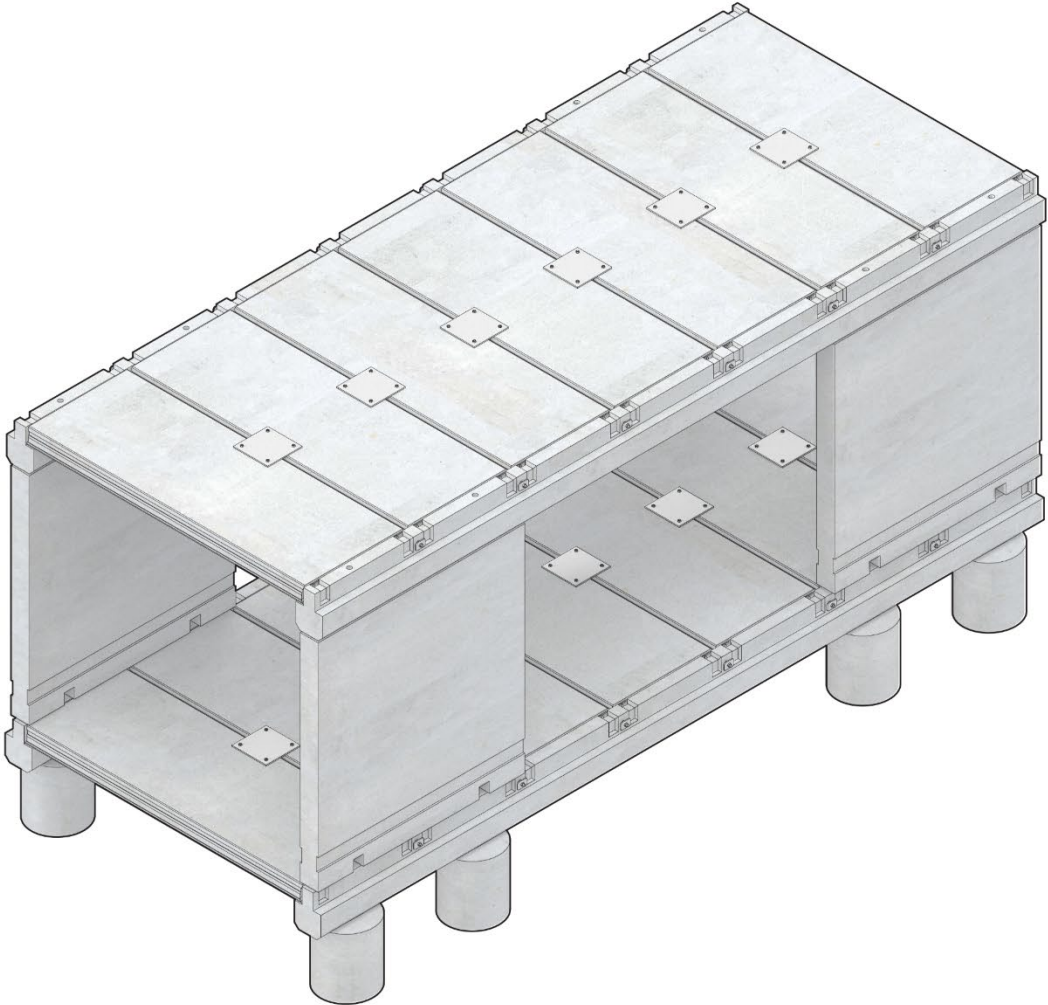


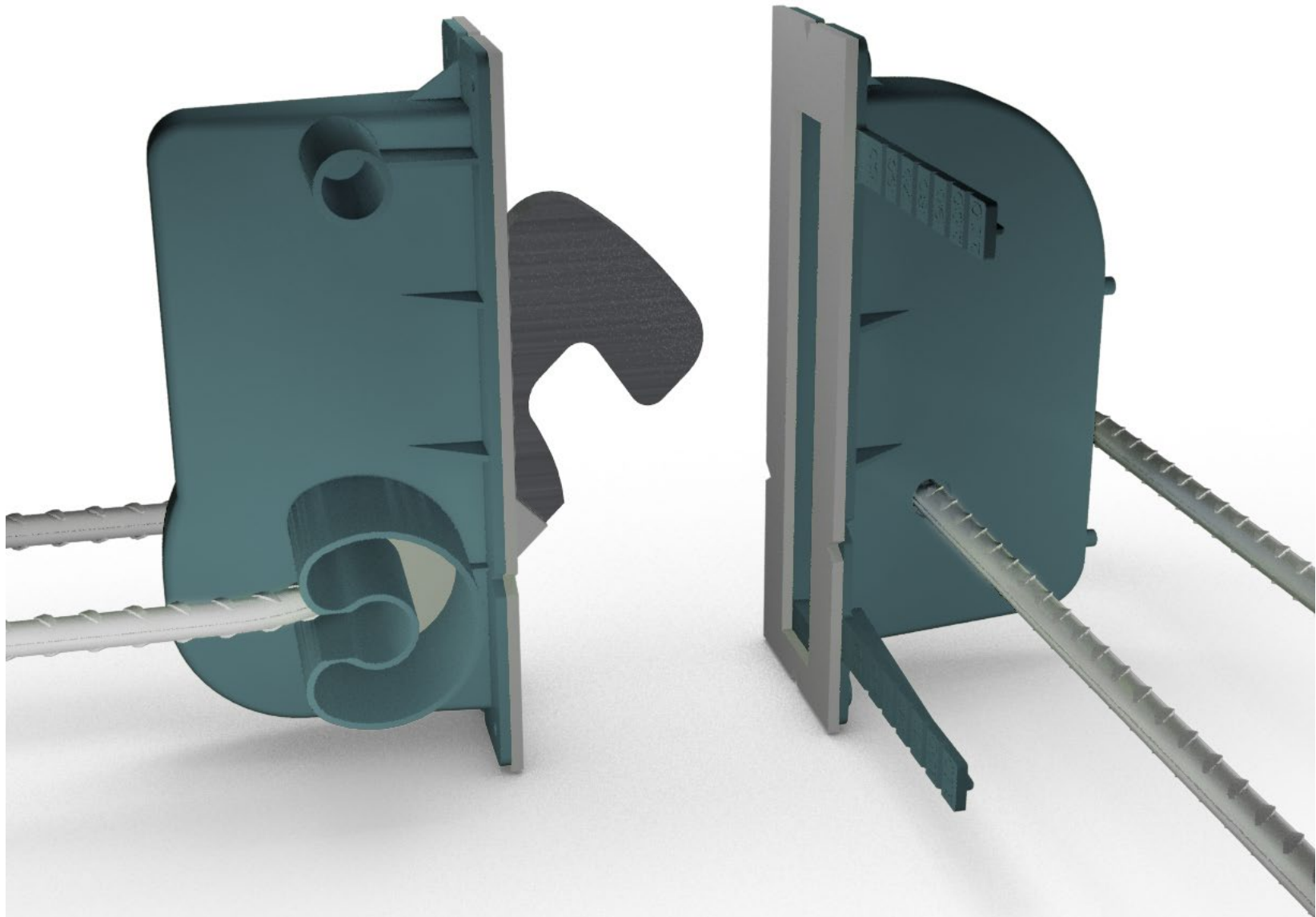








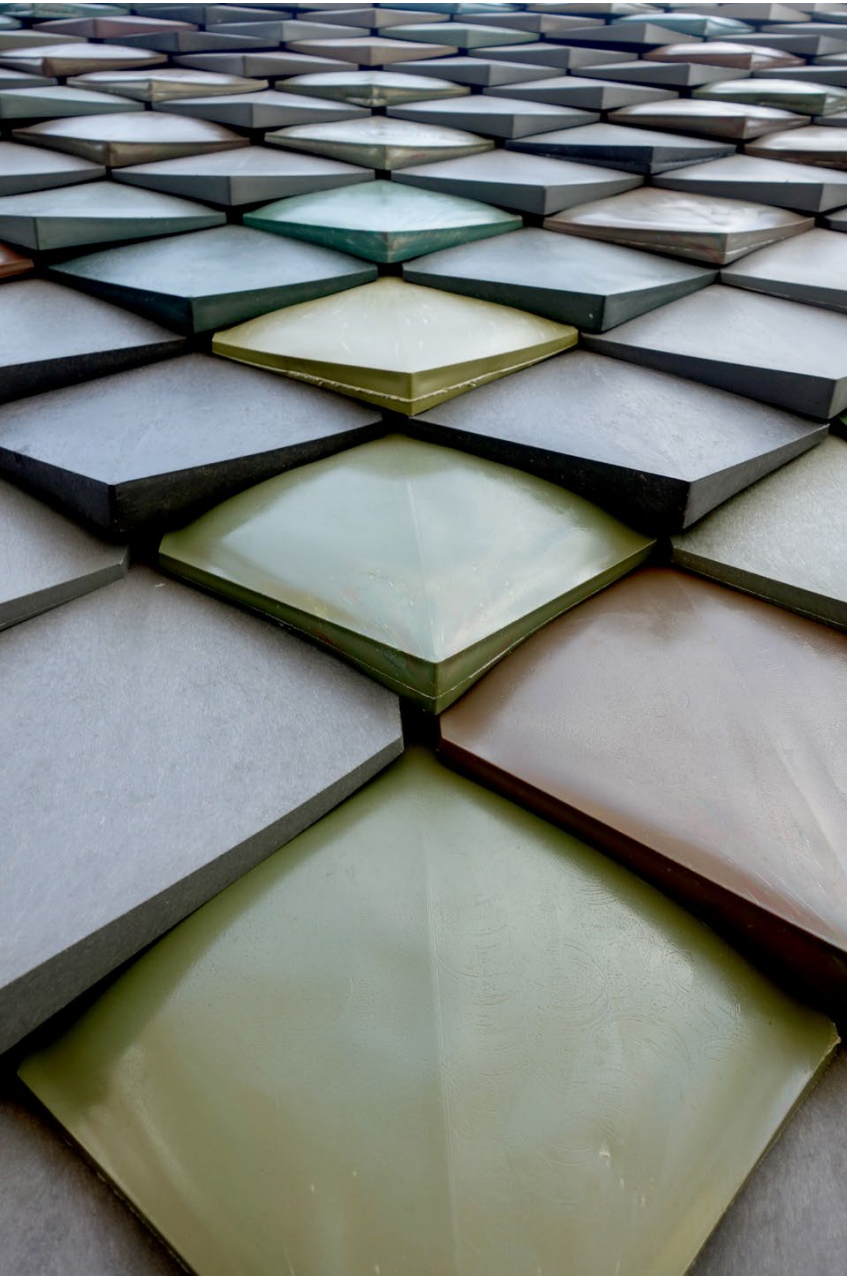










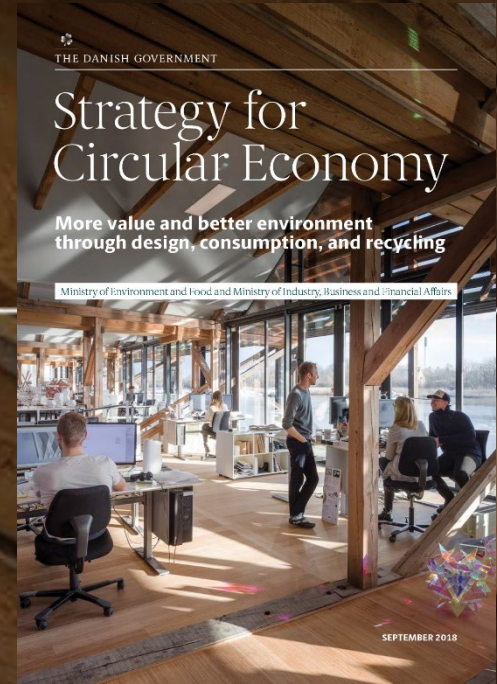




THE DANISH GOVERNMENT

Strategy for Circular Economy

**More value and better environment
through design, consumption, and recycling**



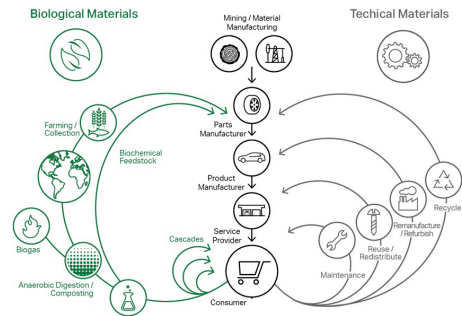


cen CEN/TC 350 SC1

european standards
circular construction



Cradle to Cradle
Manual
2013



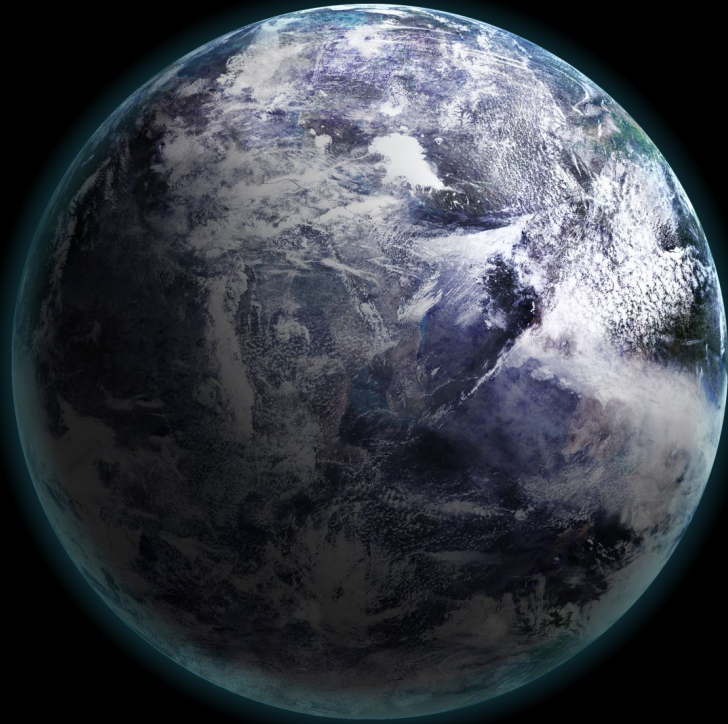
Building a Circular
Future
2016



Doughnut for Urban
Development
2023

Hvad kan jorden bære? Hvad er de planetære grænser?

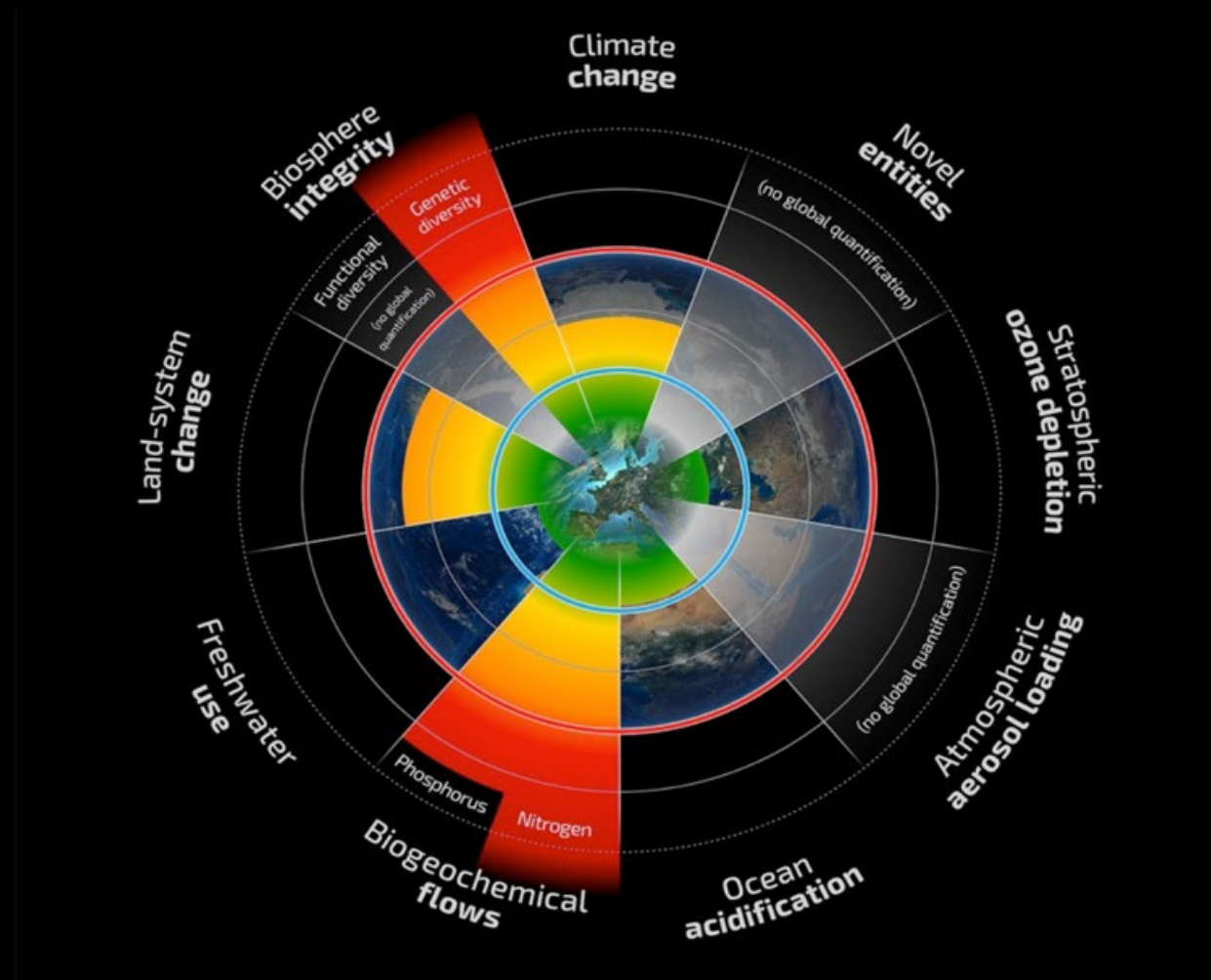
... På dansk også omtalt som 'Absolut Bæredygtighed'



∴ Home.Earth

Hvad kan jorden bære? Hvad er de planetære grænser?

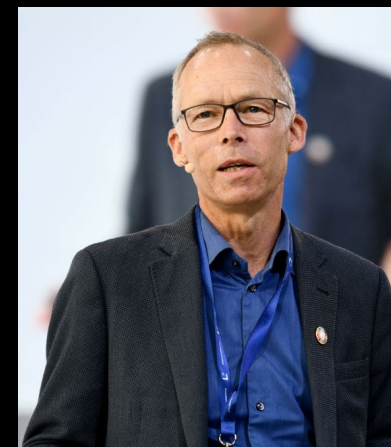
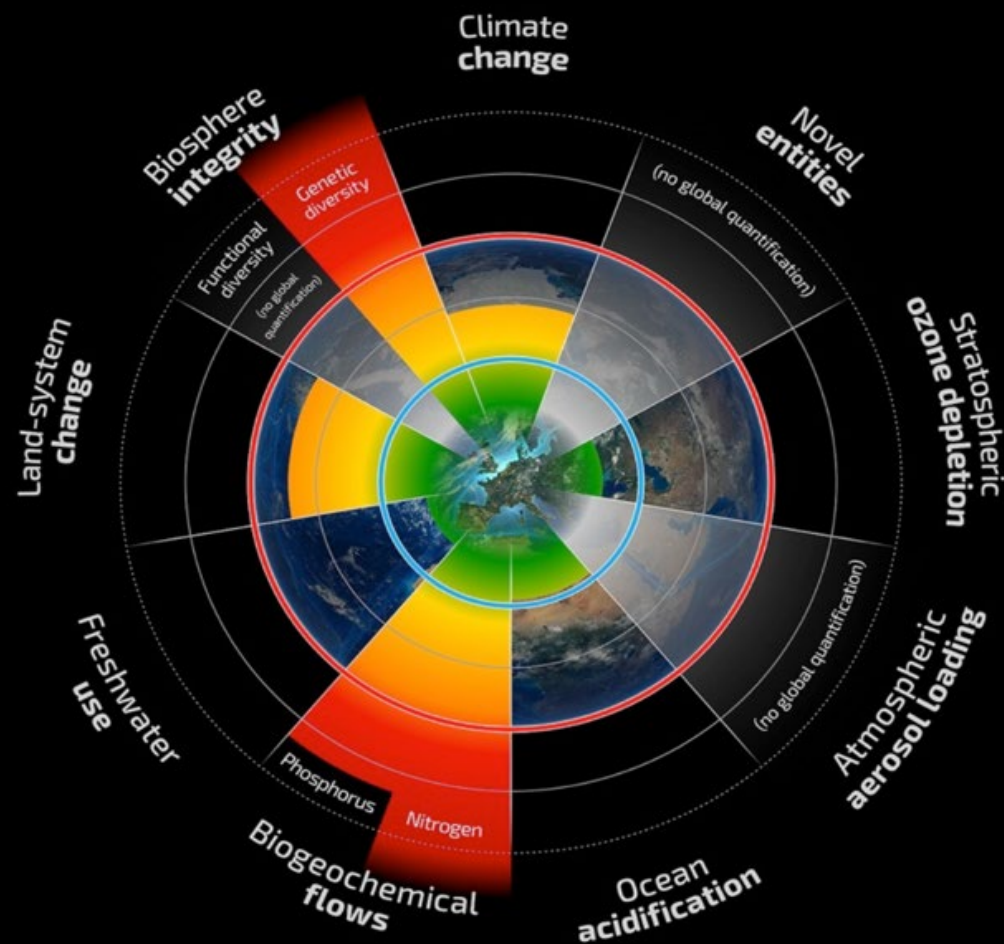
... Der er 2 Planetære Grænser. Men kun 2 'core boundaries' klimaforandring og biodiversitet



2009

Hvad kan jorden bære? Hvad er de planetære grænser?

... Der er 2 Planetære Grænser. Men kun 2 'core boundaries' klimaforandring og biodiversitet



BREAKING BOUNDARIES
THE SCIENCE OF OUR PLANET

NETFLIX

NETFLIX

Defining sustainability: 1987- Brundtland rapport

En bæredygtig udvikling er en udvikling, som opfylder de nuværende behov, uden at bringe fremtidige generationers muligheder for at opfylde deres behov i fare.

Miljømæssigt, Socialt, Økonomisk.

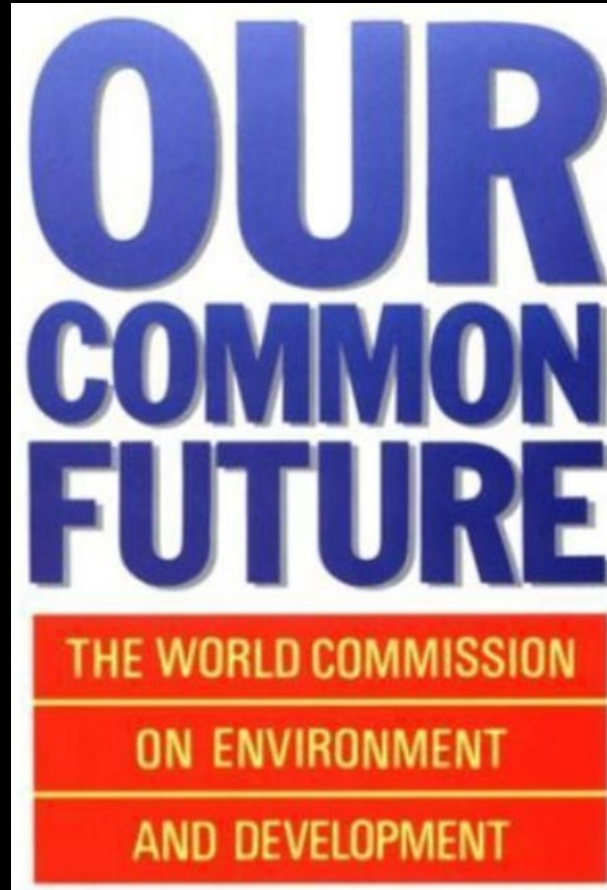


UNITED NATIONS

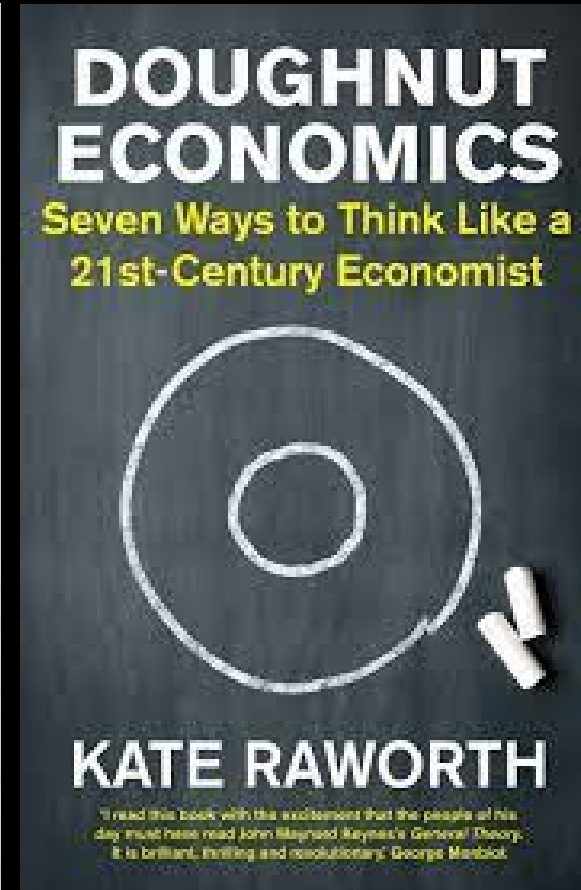
"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Vi skal kunne give et balanceret svar med flere bundlinjer

I økonomisk, social, og miljømæssig bæredygtig balance



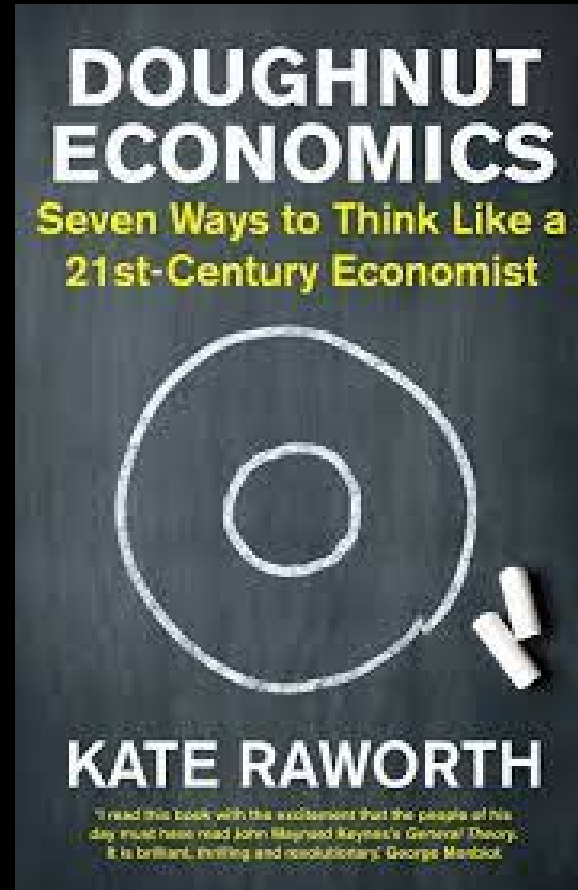
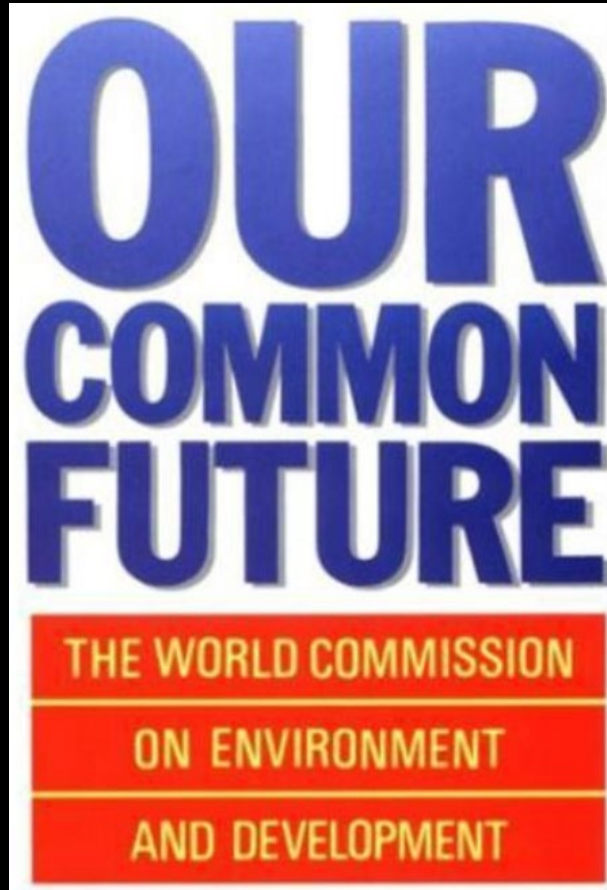
1987

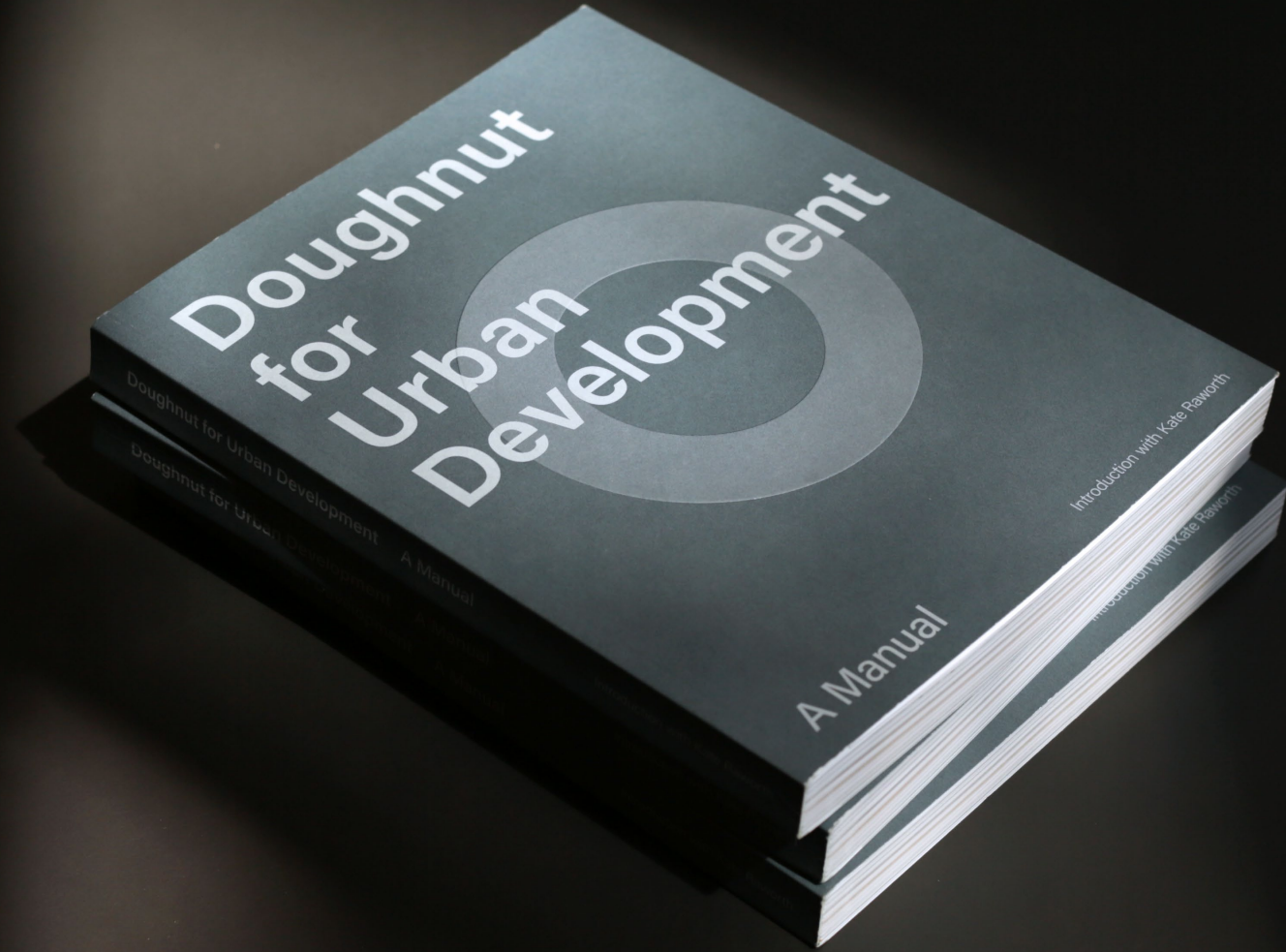


2017

Vi skal kunne give et balanceret svar med flere bundlinjer

I økonomisk, social, og miljømæssig bæredygtig balance





Doughnut for Urban Development

Introduction with Kate Raworth

A Manual

Doughnut for Urban Development
A Manual

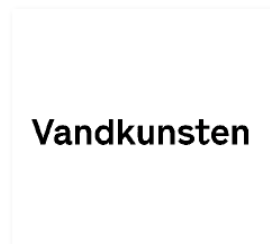
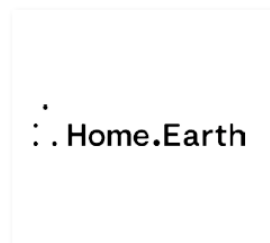
Introduction with Kate Raworth



First sector collaboration: Doughnut for Urban Development

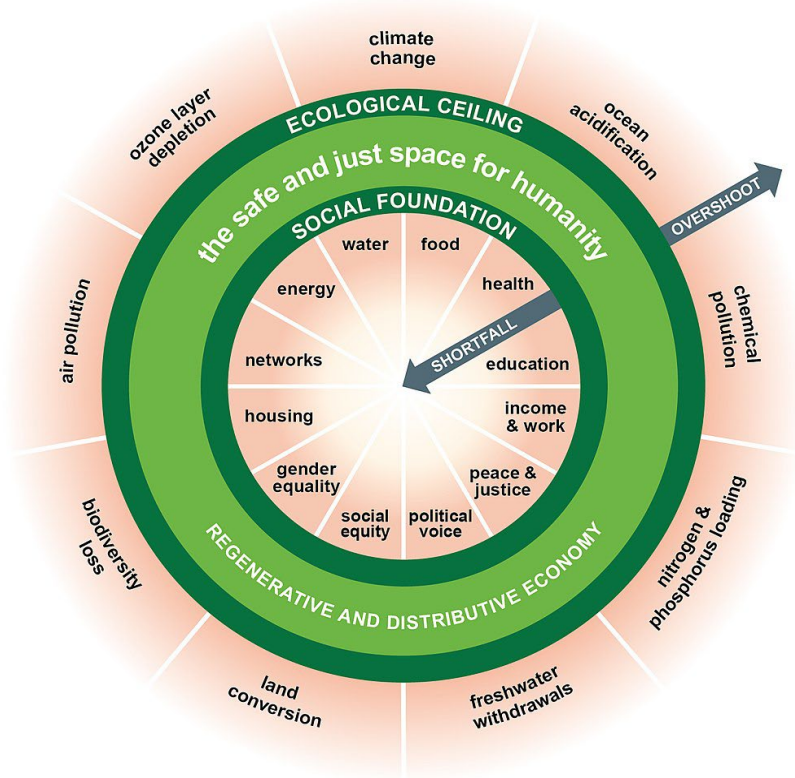


We have a Dream Team

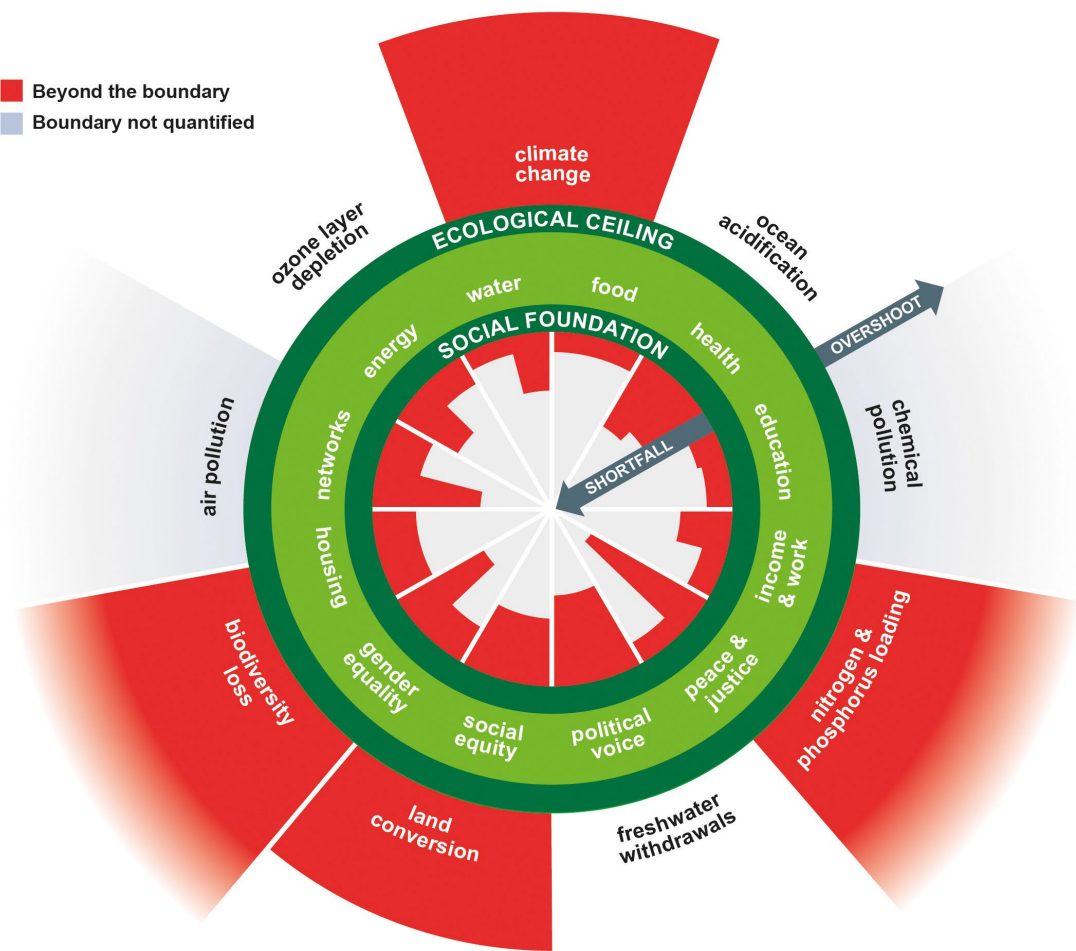


Collaboration across experts, universities, urban advisors and developers.



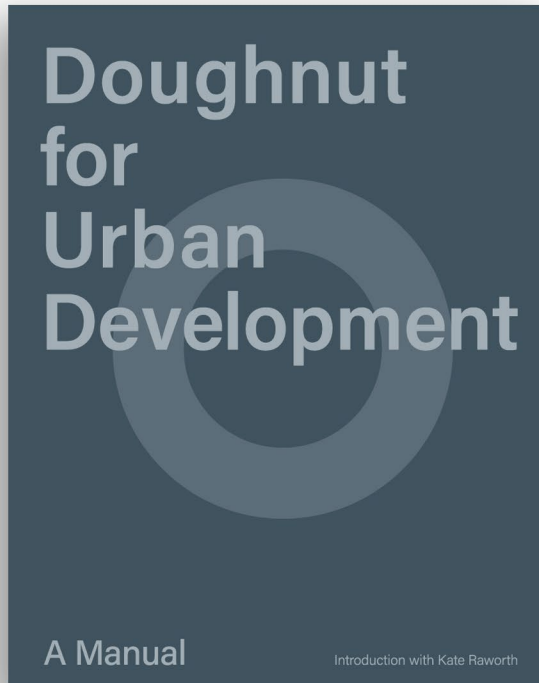


■ Beyond the boundary
 ■ Boundary not quantified

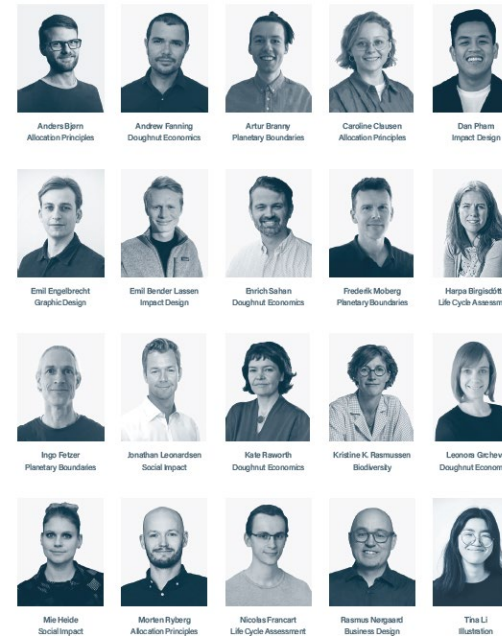




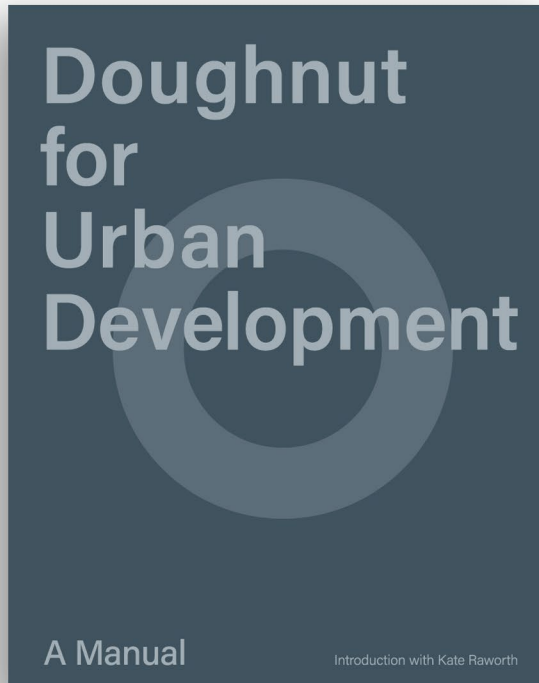




Co-creators



2023



Co-creators



Anders Bjørn
Allocation Principles



Andrew Fanning
Doughnut Economics



Artur Branly
Planetary Boundaries



Caroline Cluizen
Allocation Principles



Dan Pham
Impact Design



Emil Engelbrecht
Graphic Design



Emil Bender Lassen
Impact Design



Erich Sahar
Doughnut Economics



Frederik Moberg
Planetary Boundaries



Hanga Birgisdóttir
Life Cycle Assessment



Ingo Fetzer
Planetary Boundaries



Jonathan Leonardsen
Social Impact



Kate Raworth
Doughnut Economics



Mia Heide
Social Impact



Morten Ryberg
Allocation Principles



Mia Heide
Social Impact



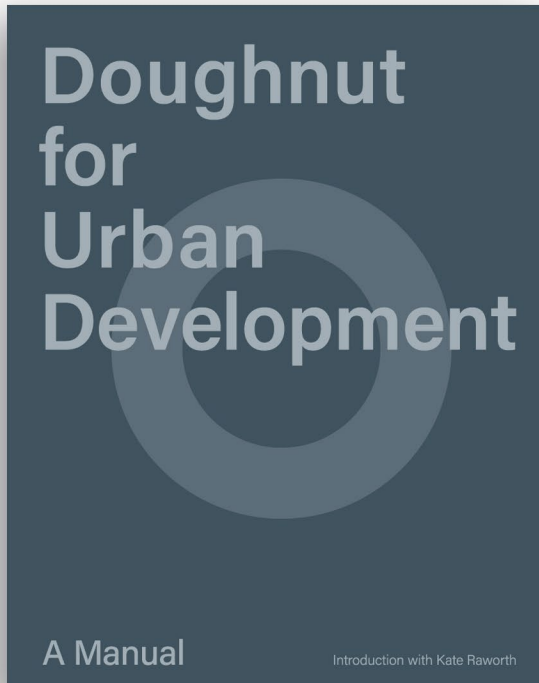
Morten Ryberg
Allocation Principles

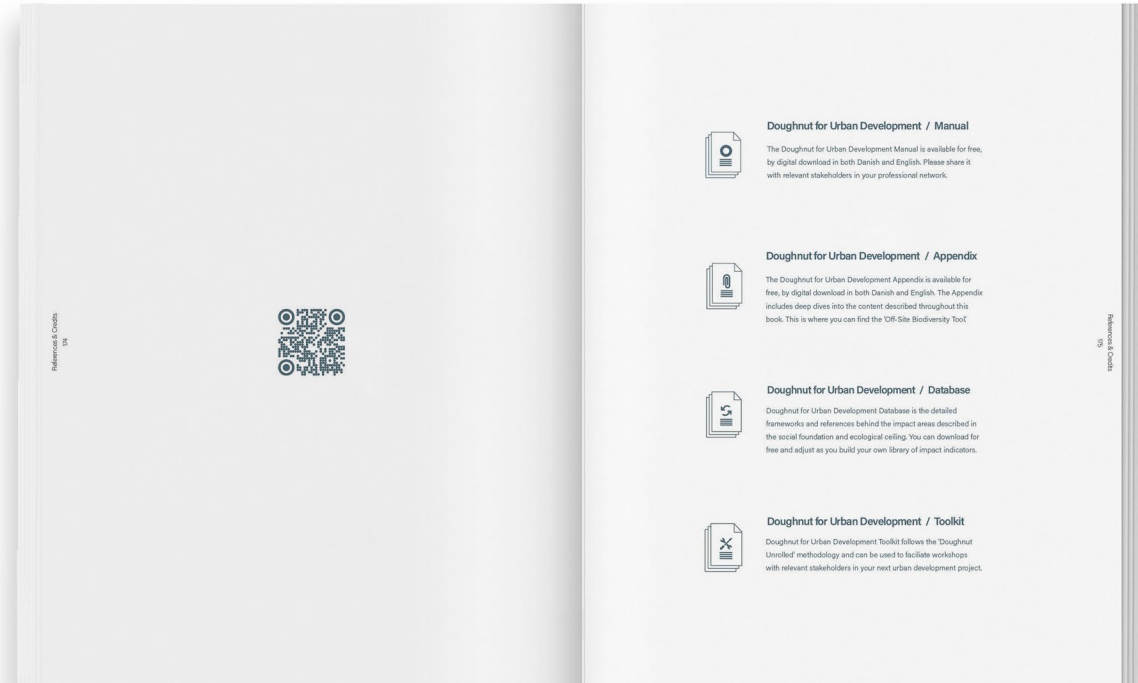


Nicolas Francart
Life Cycle Assessment

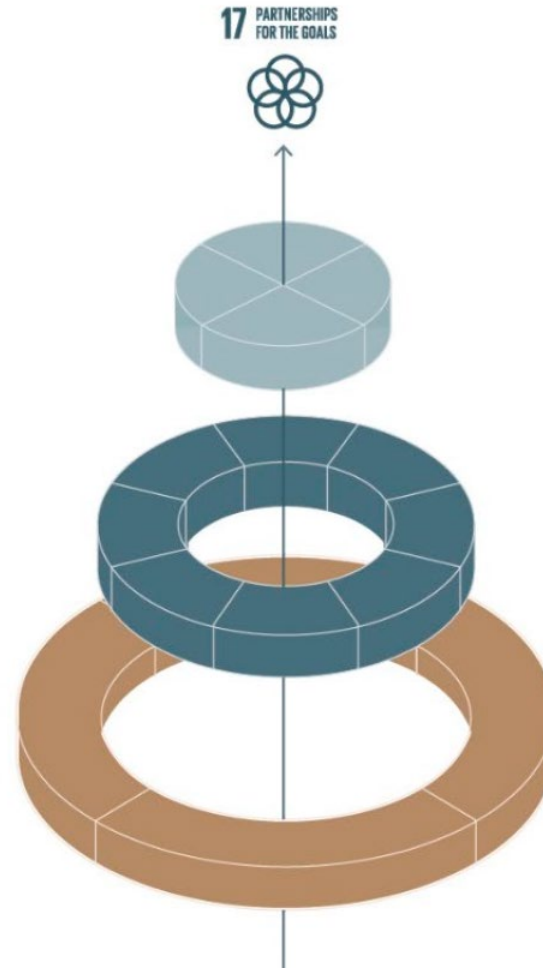
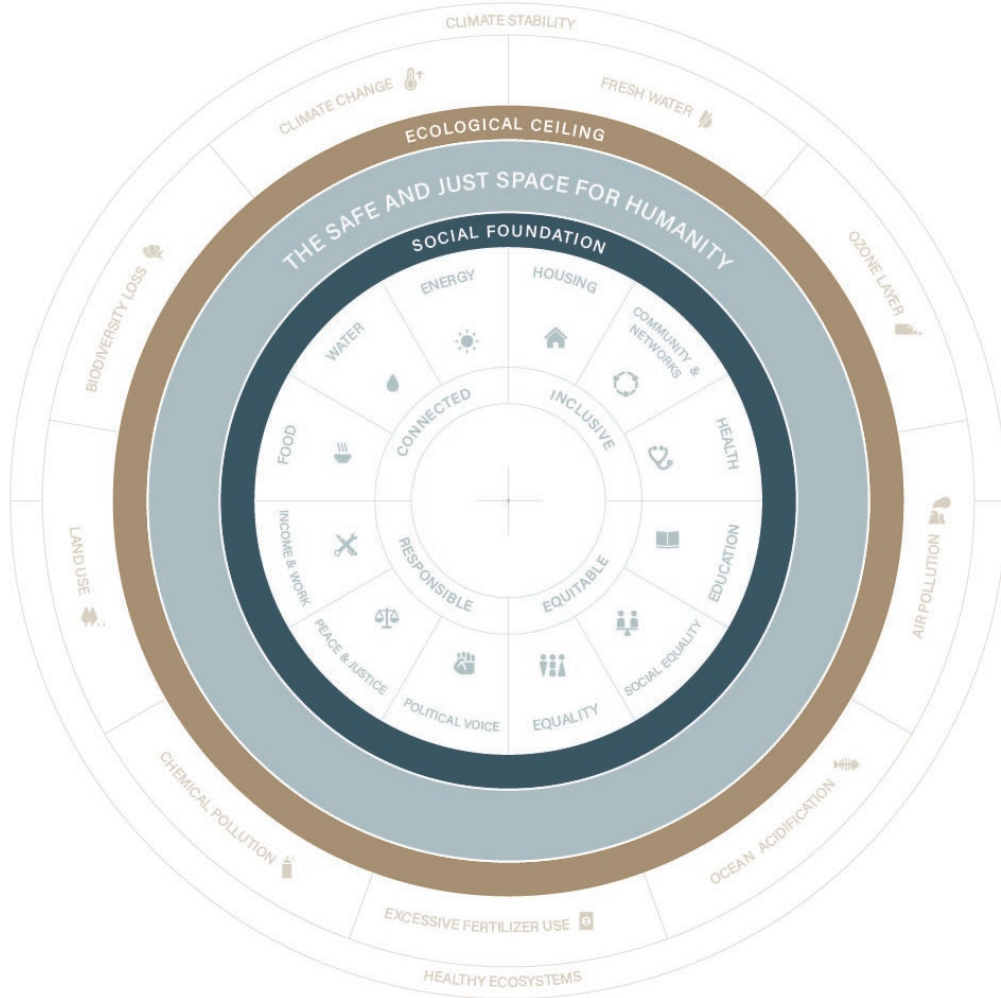












Business

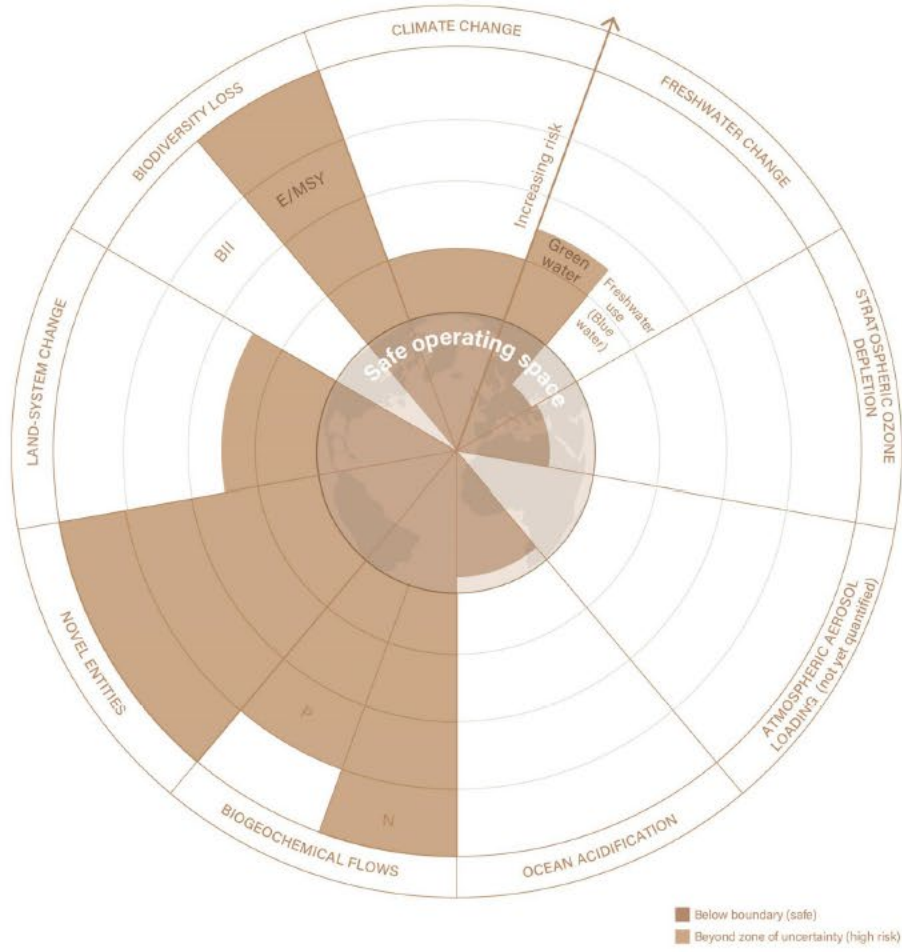


Social

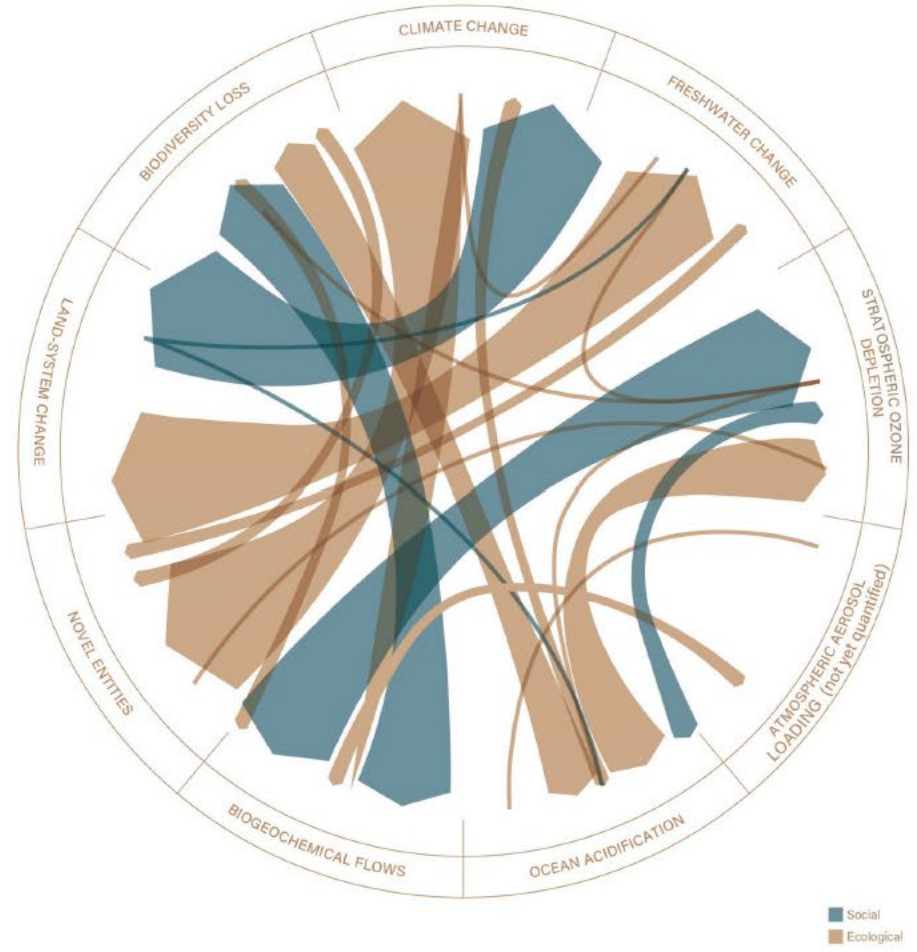


Ecological





The Doughnut for Urban Development, 2023. Figure 16.

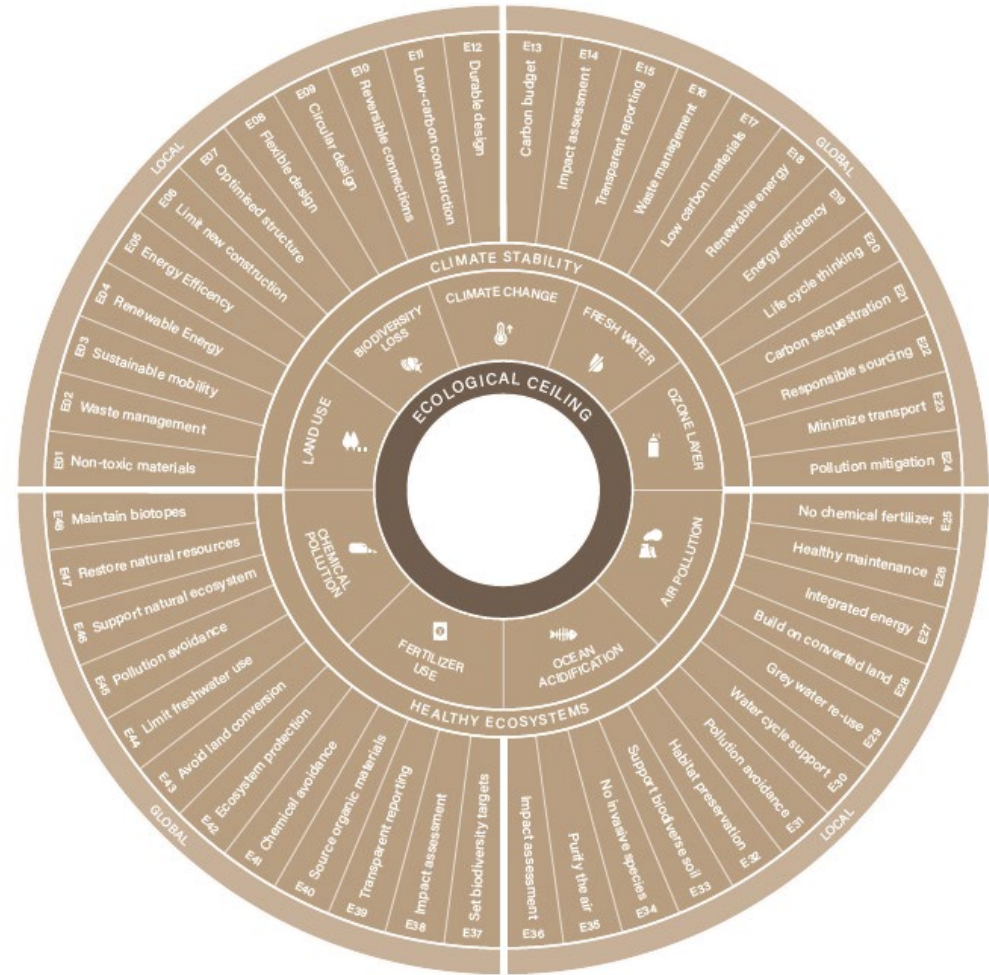


The Doughnut for Urban Development, 2023. Figure 18.

Dynamic Earth Systems

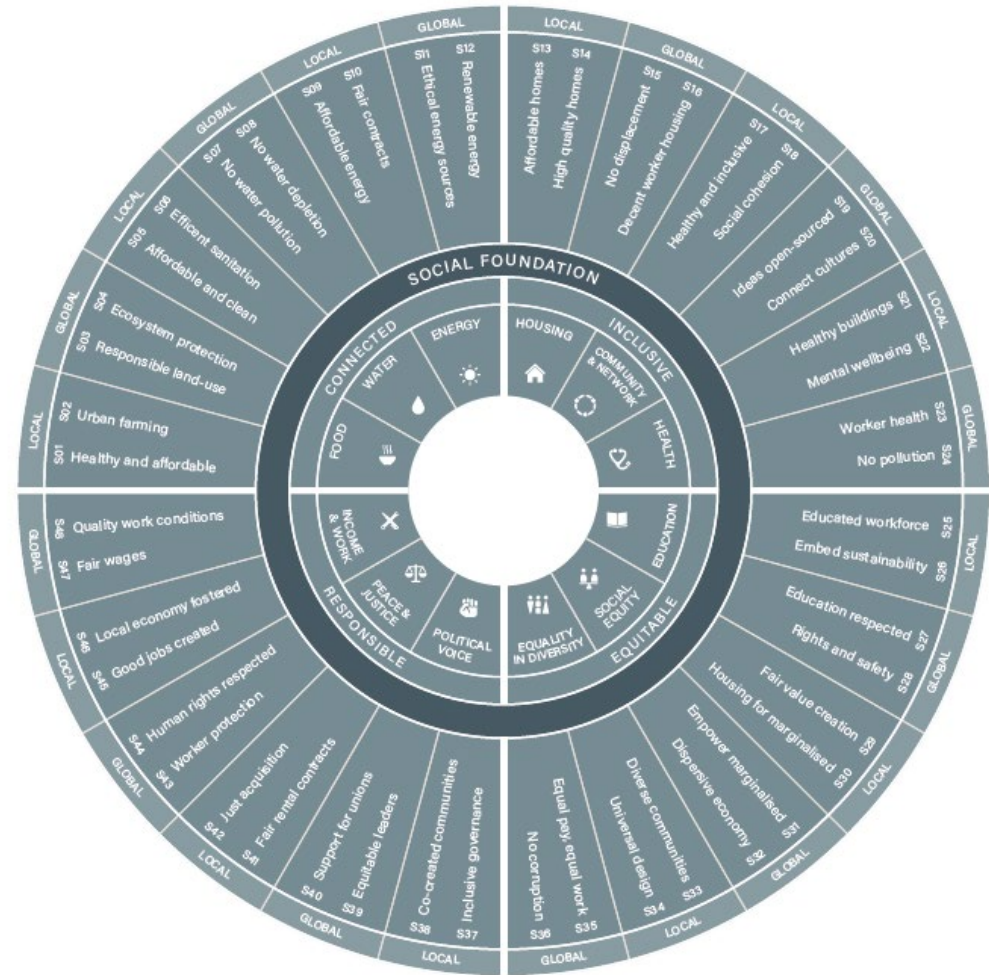
Planetary Ceiling For Urban Development

03



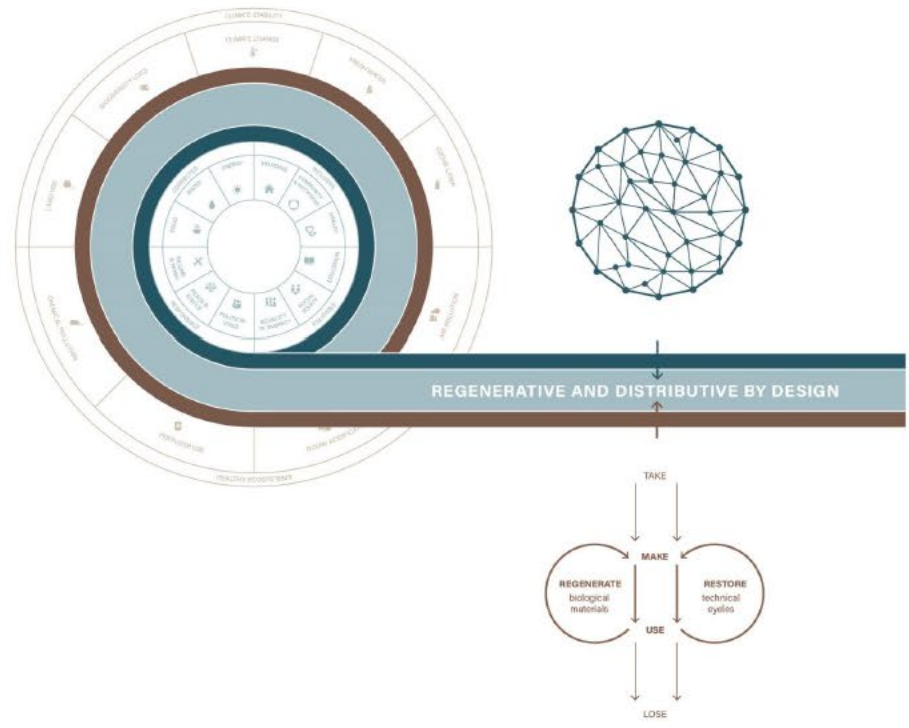
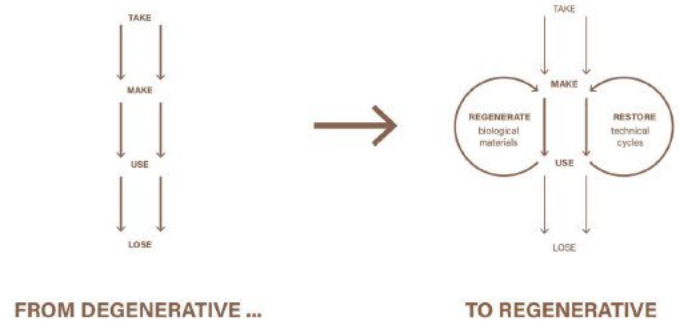
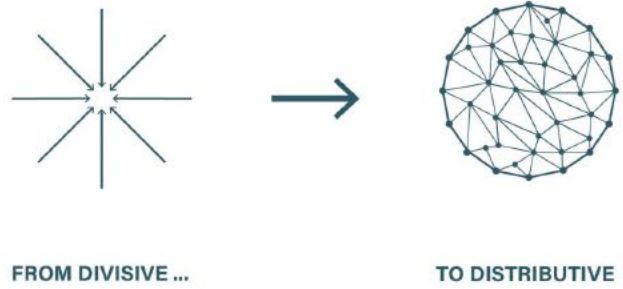
The Social Foundation For Urban Development

02





Transparent Social Impact Assessment – Locally and Globally



The Doughnut for Urban Development, 2023. Figure 5.

The Doughnut for Urban Development, 2023. Figure 6.



The Four Lenses of the Doughnut for Urban Development

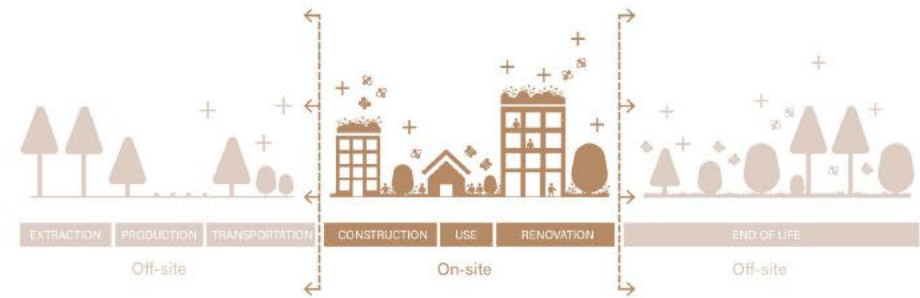
On-site



Off-site



The Doughnut for Urban Development, 2023, Figure 8.



The Doughnut for Urban Development, 2023, Figure 29.

- ✓ Set absolute carbon budgets
- ✓ Set biodiversity targets
(onsite and offsite)
- ✓ **Transparent social impact
assessment**



Doughnut for Urban Development

A Manual

Introduction with Kate Raworth

Doughnut for Urban Development A Manual

This book presents the background, process and findings of the Doughnut for Urban Development which is the result of a collaborative research process between twenty consultants and twenty contracting experts. It was created with the aim of providing developers and other building industry actors with knowledge that supports the application and practice of Doughnut principles in urban development. The book consists of five main chapters: The Social Foundations for Urban Development, The Ecological Ceiling for Urban Development, Urban Development within Planetary Boundaries and Doughnut Design for Business.

Inside you will find several downloadable resources that will help you in your pursuit of applying the core principles and reaching the targets set within a Manual, an Appendix, a Database and a Toolbox.

"The methods and matrix that we have been using to be a part of the Doughnut for Urban Development" with a foreword by Kate Raworth. The book is a manual for urban development actors who are interested in applying the Doughnut principles in their work. The book is a manual for urban development actors who are interested in applying the Doughnut principles in their work. The book is a manual for urban development actors who are interested in applying the Doughnut principles in their work.

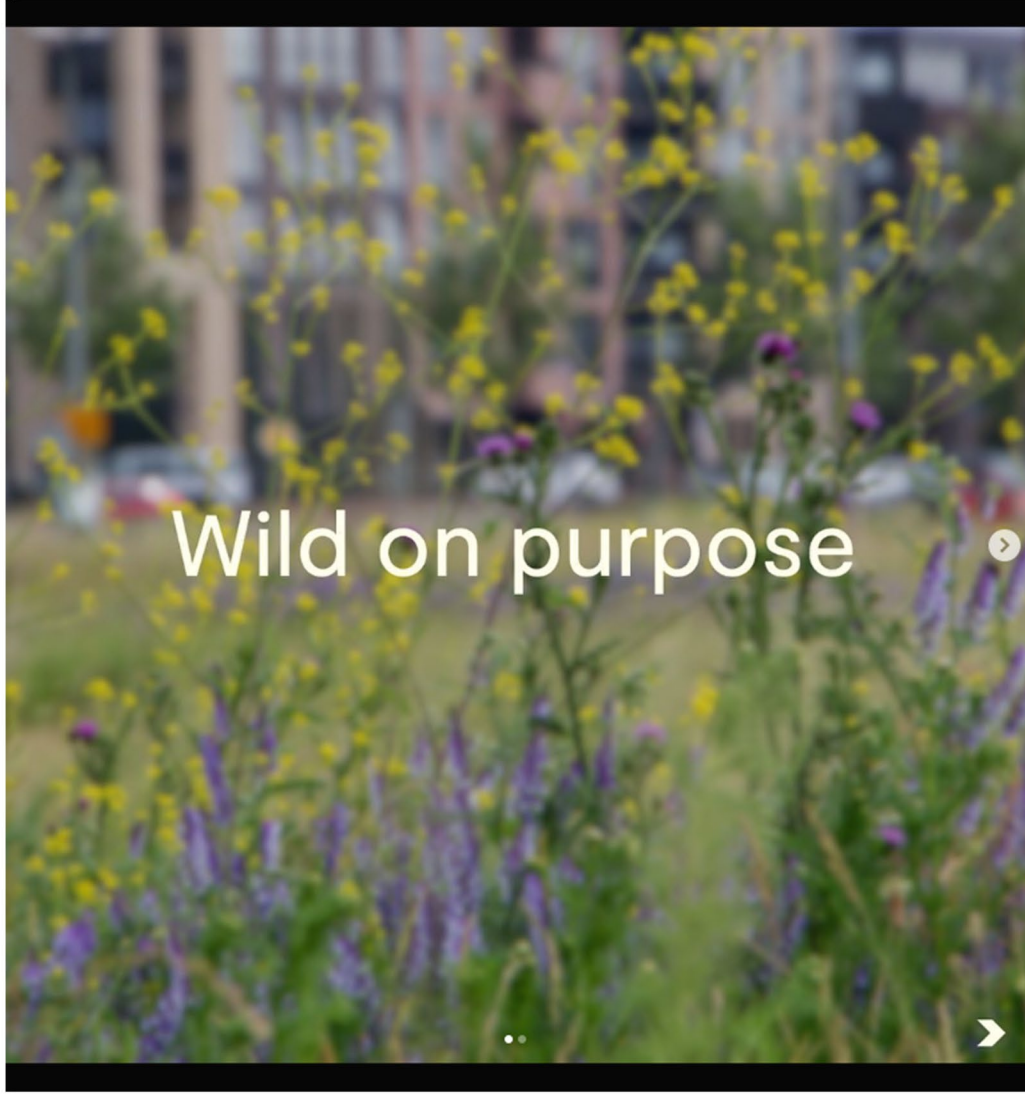
Author's statement
I am a Danish architect and urban planner. I have been working in the field of urban development for many years. I have been interested in the Doughnut concept for some time and I have been working on it for some time. I have been working on it for some time. I have been working on it for some time.


Danish Architectural Press





Biodiversity.Tool




 homedotearth ...

 homedotearth Wild on purpose 🦋

As we refer to ourselves as a company that cares for the planet, here are some insights about what we are doing to operate in a planet positive way.

To reach our biodiversity target, we collaborate with partners and use the latest best practice for urban greening. One impactful tool is urban green spaces that are wild on purpose, encompassing more biodiversity than classical gardening while impacting also surrounding spaces. 🌻🌱

29 w

   🔖

 Liked by majavlk_art and others

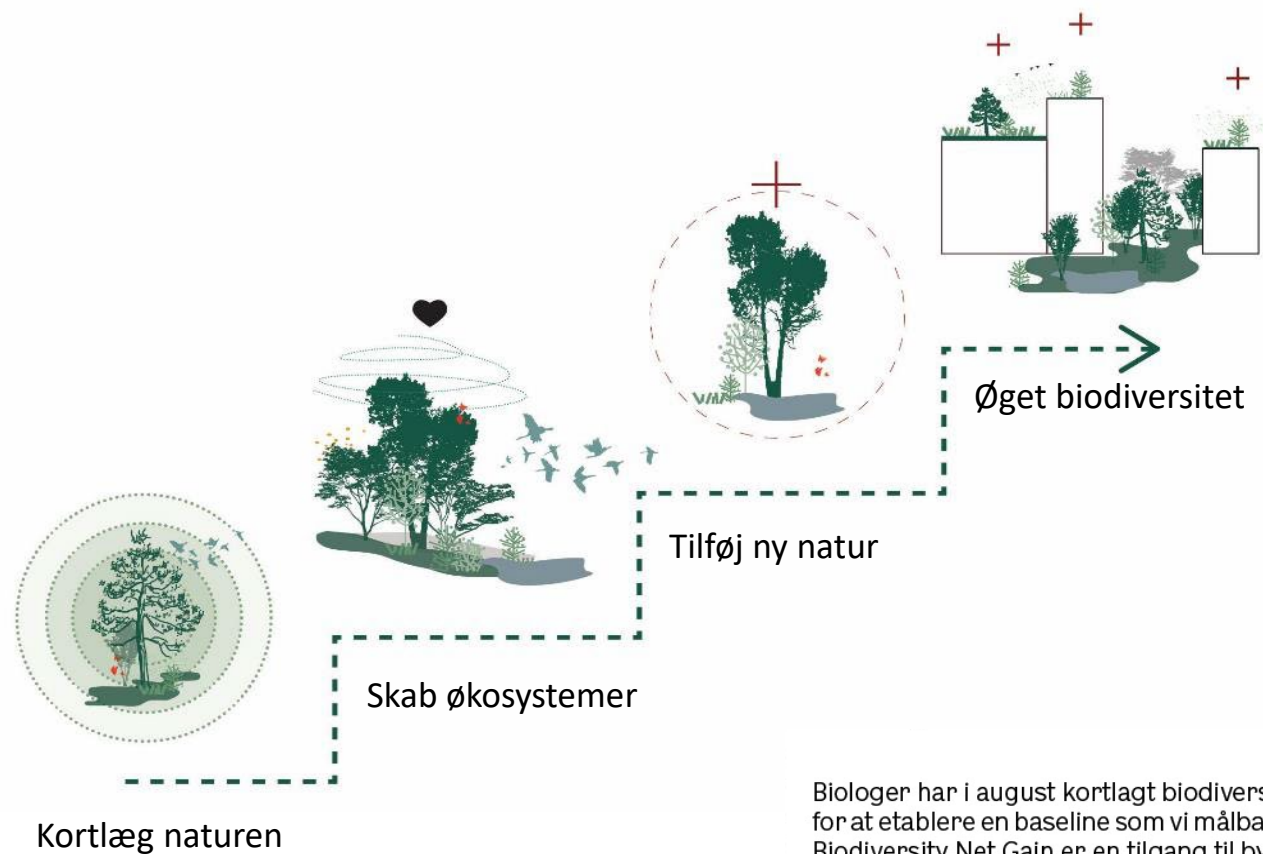
APRIL 11

 Add a comment...

Post

Biodiversity NetGain

Målet er at blive bio-positiv ved brug af metoden *Biodiversity Net Gain*



Biologer har i august kortlagt biodiversiteten på sitet for at etablere en baseline som vi målbart vil forbedre. Biodiversity Net Gain er en tilgang til byudvikling som er formuleret i England og i 2021 vedtaget som krav for nye byudviklingsprojekter i blandt andet London. Princippet er at kortlægge den eksisterende biodiversitet og indarbejde tiltag i projektering der sikrer målbart forbedring af biodiversitet. Til kortlægning og effektmåling anvendes Biodiversity Metric, som er et kvantitativt system, hvor areal og kvalitet af habitater og beplantning indgår:

Registering af eksisterende baseline



Home.Earth.01 - Biodiversity calculation

SLA, baseline calculation, sept. 2021:

New habitat type	Biodiversity Metric habitat	Distinctiveness (score)	SLA recommendation (m2)	Area (m2) saved/new	HU unit/ha	Total habitat units
● Bevaret krat med træer	Heathland and shrub/mixed/schrub	Low (2)		500		0,21
● Ruderat	Urban/vacant, derelict, bare ground	Medium (4)		580	4,04	0,23
● Bytræer	Urban tree	Medium (4)	1760	320	3,36	0,11
● Øvrig ny bevoksning, småtræer mv.	Other woodland, mixed	Medium (4)	2640	1400	3,02	0,42
● Stauder, urter og græsser	Other neutral grassland	Medium (4)		1450	7,36	1,07
● Regnbede**	Sustainable urban drainage feature	Low (2)		90	2,77	0,02
● Grønne tage***	Extensive green roof	Low (2)	1350 (min.50%)	1065	3,95	0,42
● Grønne facader	Ground based green wall	Low (2)		480	2,65	0,13
Total						2,61

** kun regnbede i lokalvej er regnet her

*** her er regnet med 35% grønt tag på bygninger + 100% på skure

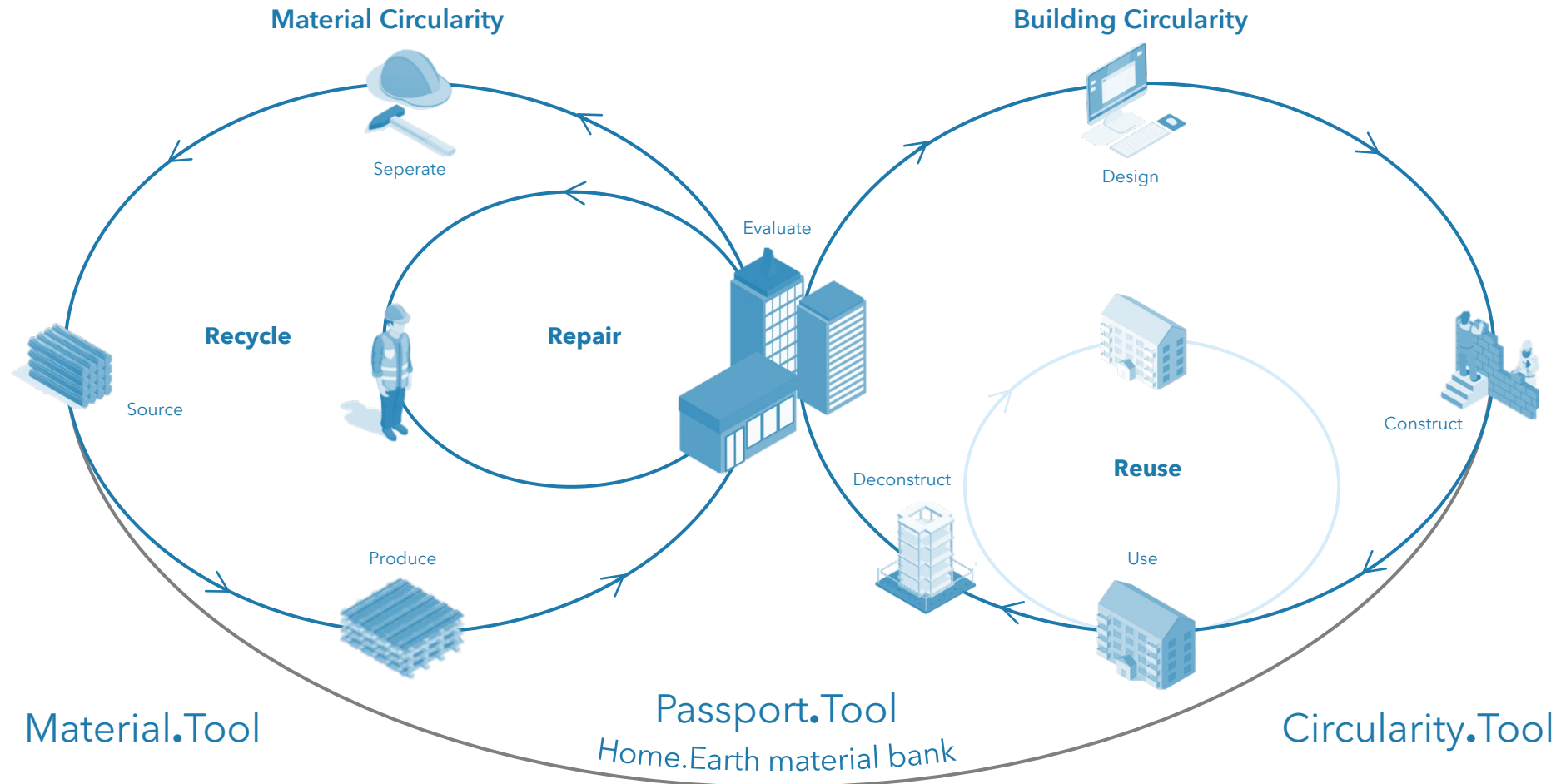


JUVELEN

The background is a solid dark green color. There are five circles scattered across the space: one large blue circle in the upper right quadrant, and four smaller white circles positioned at the top left, top center, top right, and bottom center.

Circularity.Tool

Strategy: Towards 100% circularity in all stages we are deploying internal tools from design, construction, operation to end-of-life



Lack of transparency is a barrier for circular economy in construction

SustainableBuild Materialepas UDKASTDen 12. okt. 2021

SustainableBuild Materialepas

Materialepas er et sæt data, der beskriver definerer egenskaber ved materialer i produkter, der giver dem værdi til nyttiggørelse, genbrug og genanvendelse.

Ejer af passet: Firma navn
Pasnummer: Unikt pasnummer
Oprettet: DD.MM.AAAR.
Senest ændret: DD.MM.AAAR. Rev. nr.: _____

MP
logo af åben data software generator

3. parts verificeret: Verificerings organisation: _____
 Ja Nej Verificeringsnummer: _____

% af varen der deklarerer: _____

Generisk produkt navn
Firma navn i firma skrift A/S

FL
firmaets logo

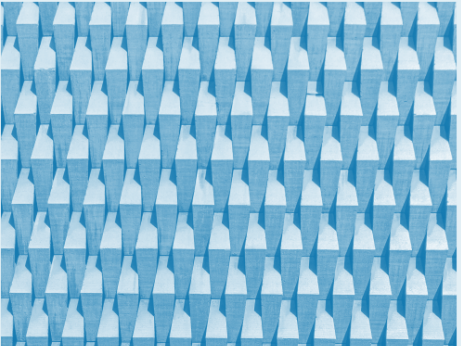
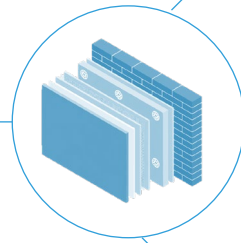


Photo by Diego Gonzalez on Unsplash

SustainableBuild
Materialepas



Specific material
supplier

1. Product info

2. Supplier info

3. Content
declaration

4. Chemistry

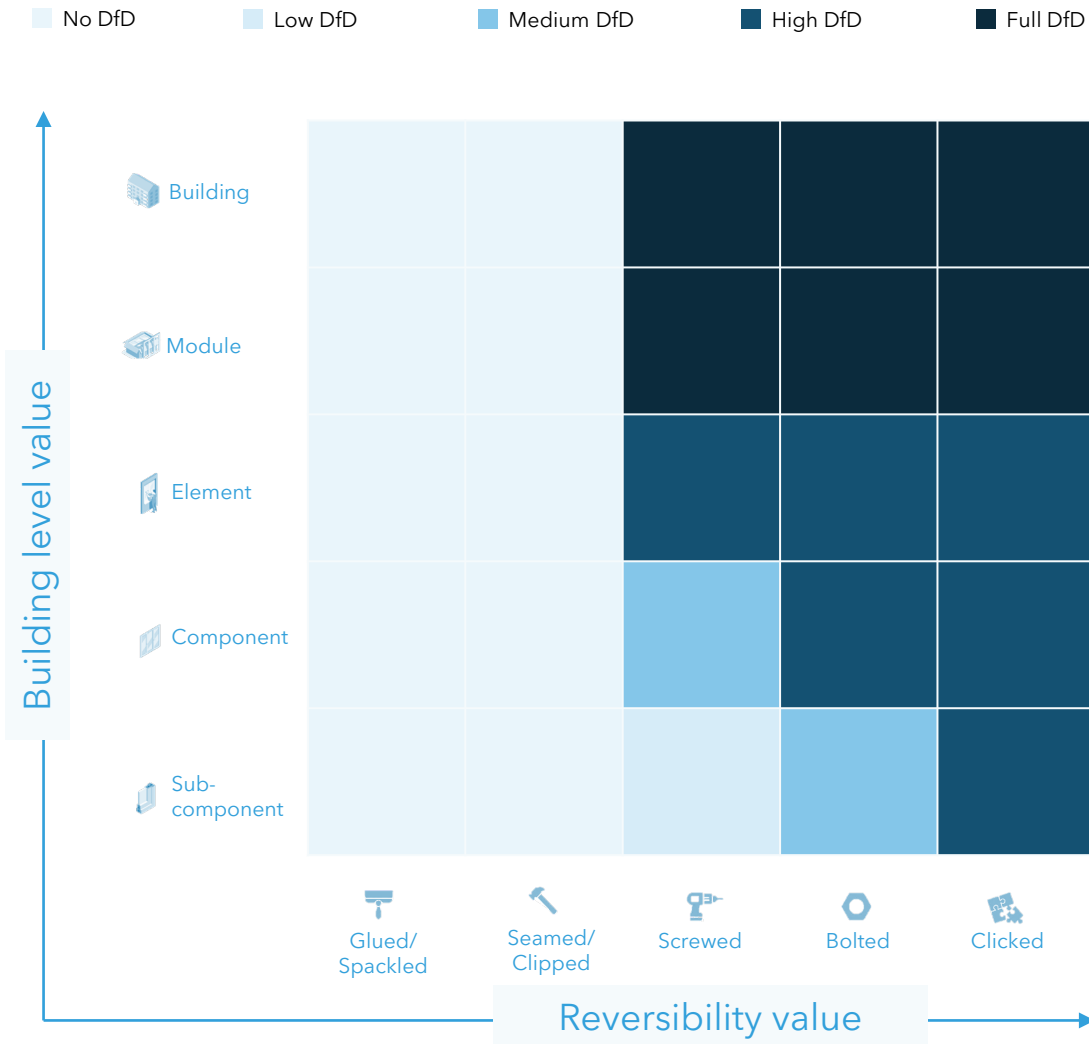
5. Packaging

6. O&M

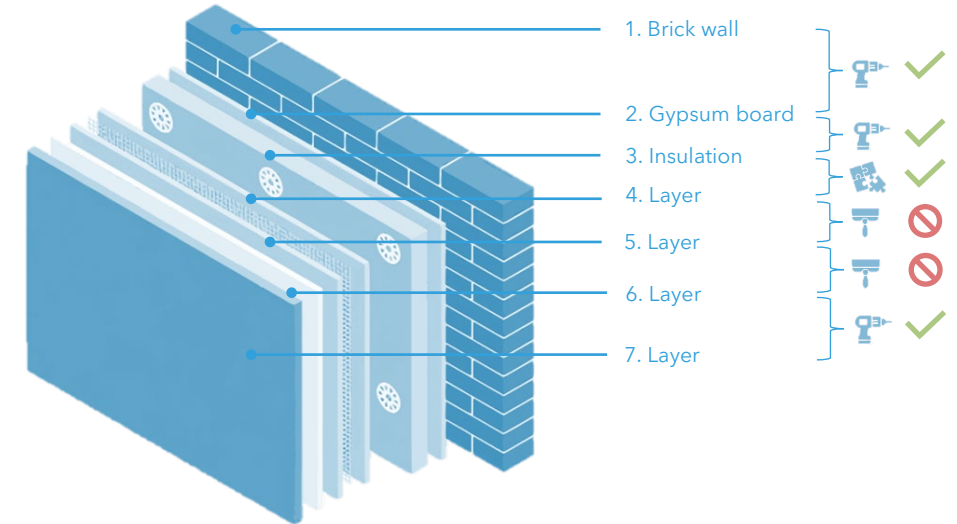
7. Indoor climate

8. Reuse potential

We have developed a system that can 'score' the circularity rate



Example: Outer wall per m2



Example: Contractor defines assembly of building part

Layer	% Volume	Subcomponent	Component	Subcomponent
1. Brick wall	0,18	Yes	Yes	No
2. Gypsum board	0,02	Yes	Yes	Yes
3. Insulation	0,25	Yes	Yes	Yes
...

Disassembly rate per m²: 87.4 %

Methodology is inspired by systems thinking and mounting reversibility

The building has been divided into **three layers**; elements, components and sub-components. DS / ISO 20887: 2020 defines them as follows:

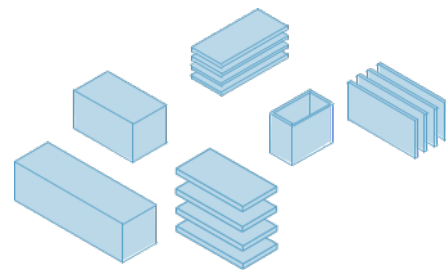
Element: "... an essential structural part of a construction"

Component: "product manufactured as a separate unit to serve a specific function or functions".

Subcomponent: "... breaks down a component into its smaller pieces, e.g. the ductwork in a heating or cooling system; the panes used for curtain walls ...".

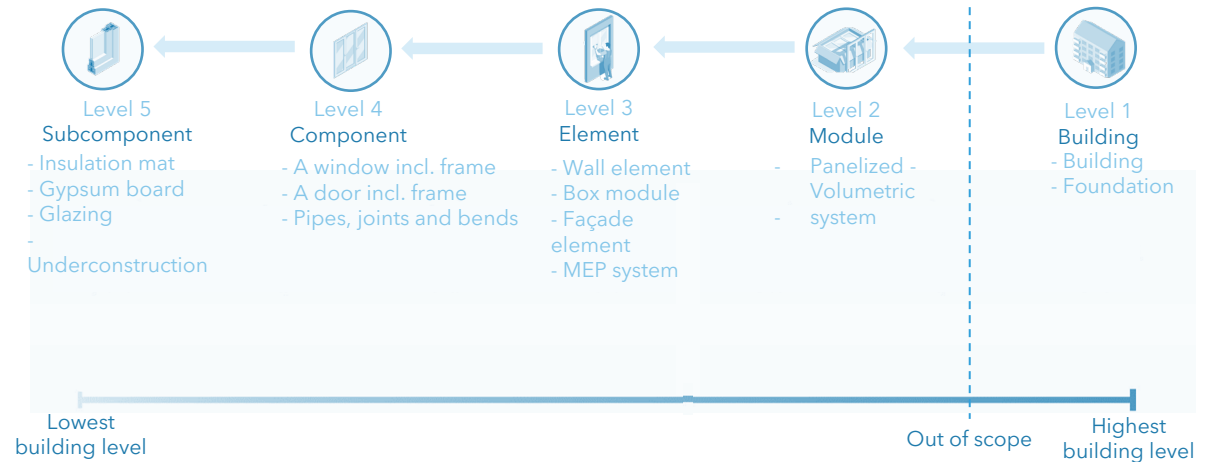


Inspired by –
DS-ISO 20887.2020
Design for disassembly
and adaptability

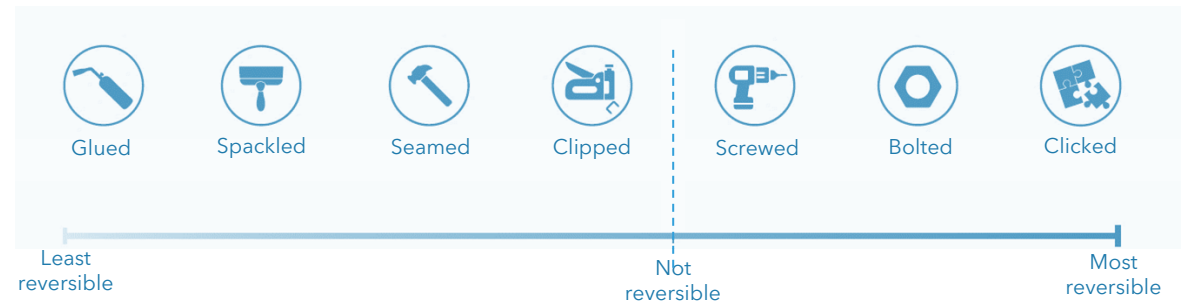


Inspired by panelized and volumetric systems

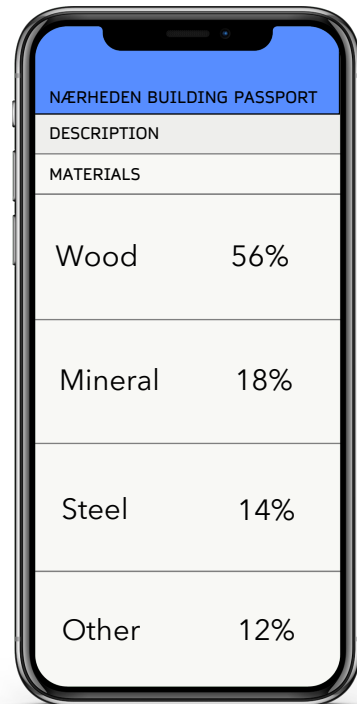
Building levels in BIM technical platforms



Levels of reversibility in mounting methods



Documentation aligned with impact frameworks and available online and open-source



The image features a dark green background with several circles of varying sizes and colors. There are four white circles and one larger blue circle. The white circles are positioned at the top left, top center, top right, and bottom center. The blue circle is located in the middle right area. The text 'Carbon.Tool' is written in white, with a small blue dot above the period.

Carbon.Tool

Byggeriets nye Bundlinje

- Co2 budgetter

Modul	A1-A3			A4-A5		B1-B7							C1-C4			D	
Livscyklusfaser	Produkt			Byggeproces		Brug							Endt levetid			Uden for systemgrænse	
Processer	Råmaterialer	Transport	Produktion	Transport	Opførelse/montering	Brug	Vedligeholdelse	Reparation	Udskiftning	Renovering	Energiforbrug til drift	Vandforbrug til drift	Nedtagning/nedrivning	Transport	Affaldsbehandling	Bortskaffelse	Potentiale for genanvendelse, genvinding og genbrug
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D

Byggeriets nye Bundlinje

- Co2 budgetter

Bygningsreglement - 2023	12,0/Kg/Co2/m2/år
DGNB guld - gennemsnit	9,2 Kg/Co2/m2/år
DGNB guld - inklusive drift	11,0 Kg/Co2/m2/år
Frivillig Bæredygtighed - 2023	8,0 Kg/Co2/m2/år
Home.Earth Nærheden - 2023	5,2 Kg/Co2/m2/år

Byggeriets nye Bundlinje

- Co2 budgetter

Bygningsreglement - 2023	12,0/Kg/Co2/m2/år
DGNB guld - gennemsnit	9,2 Kg/Co2/m2/år
DGNB guld - inklusive drift	11,0 Kg/Co2/m2/år
Frivillig Bæredygtighed - 2023	8,0 Kg/Co2/m2/år
Home.Earth Nærheden - 2023	5,2 Kg/Co2/m2/år
Absolut Bæredygtighed - 59m2 per person	1,6 Kg/Co2/m2/år

We have developed **Carbon.Tool** a holistic footprint tool beyond industry standards for early LCA and LCC optimisations

The tool will be applied on projects to ensure life cycle impact

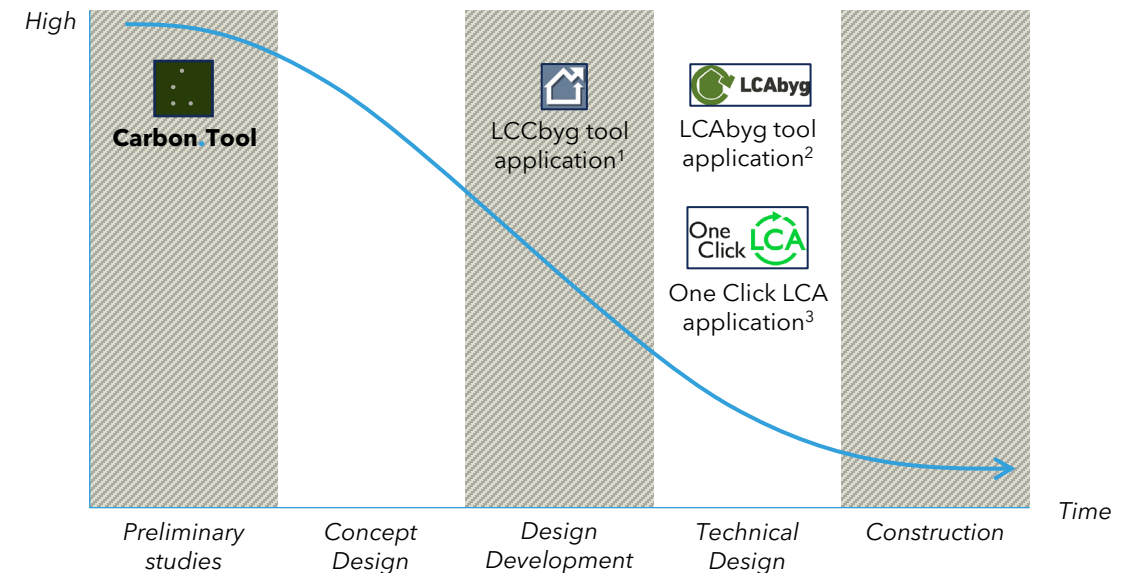
Current tools that perform LCA and LCC calculations require a high resolution of detail and are mostly performed in late stages where 3D modelling is complex and decisions are 'frozen' giving low opportunities for impact reductions.

With our new tool we take leadership by capturing early CO₂, CAPEX and OPEX opportunities to maximise the full potential of projects.

The tool works from preliminary stages and can perform a full LCA/LCC (forecasting 50 years ahead) when a 3D model is only a geometric shape, followed by providing input for 30 parameters. The calculations provide full transparency and illustrates trade-offs across environmental and cost dimensions for a set of scenarios.

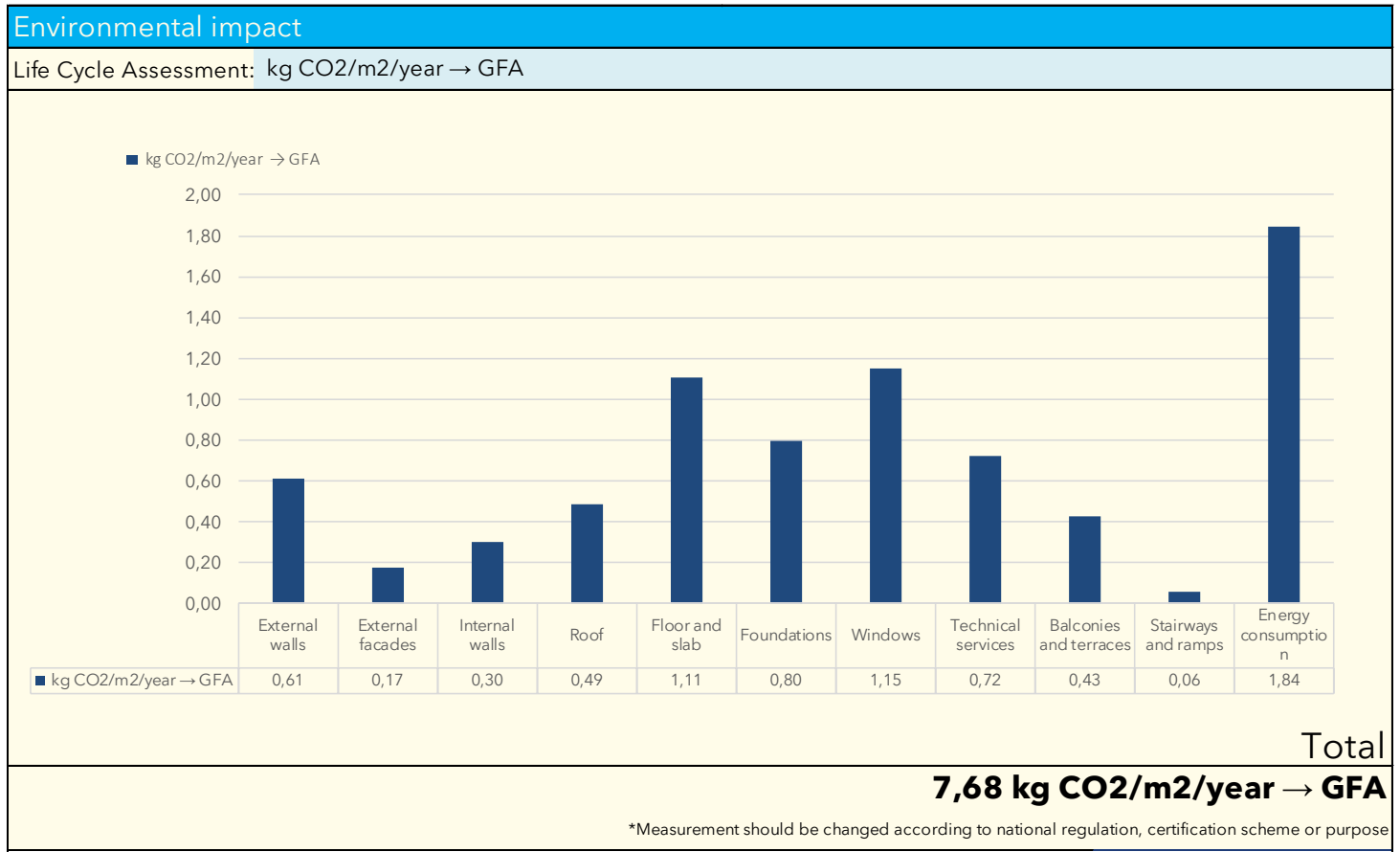
Our tool applies country specific standards and works in Denmark, Finland and Netherlands, and will be expanded when we enter new markets.

Opportunities to reduce LCA and LCC



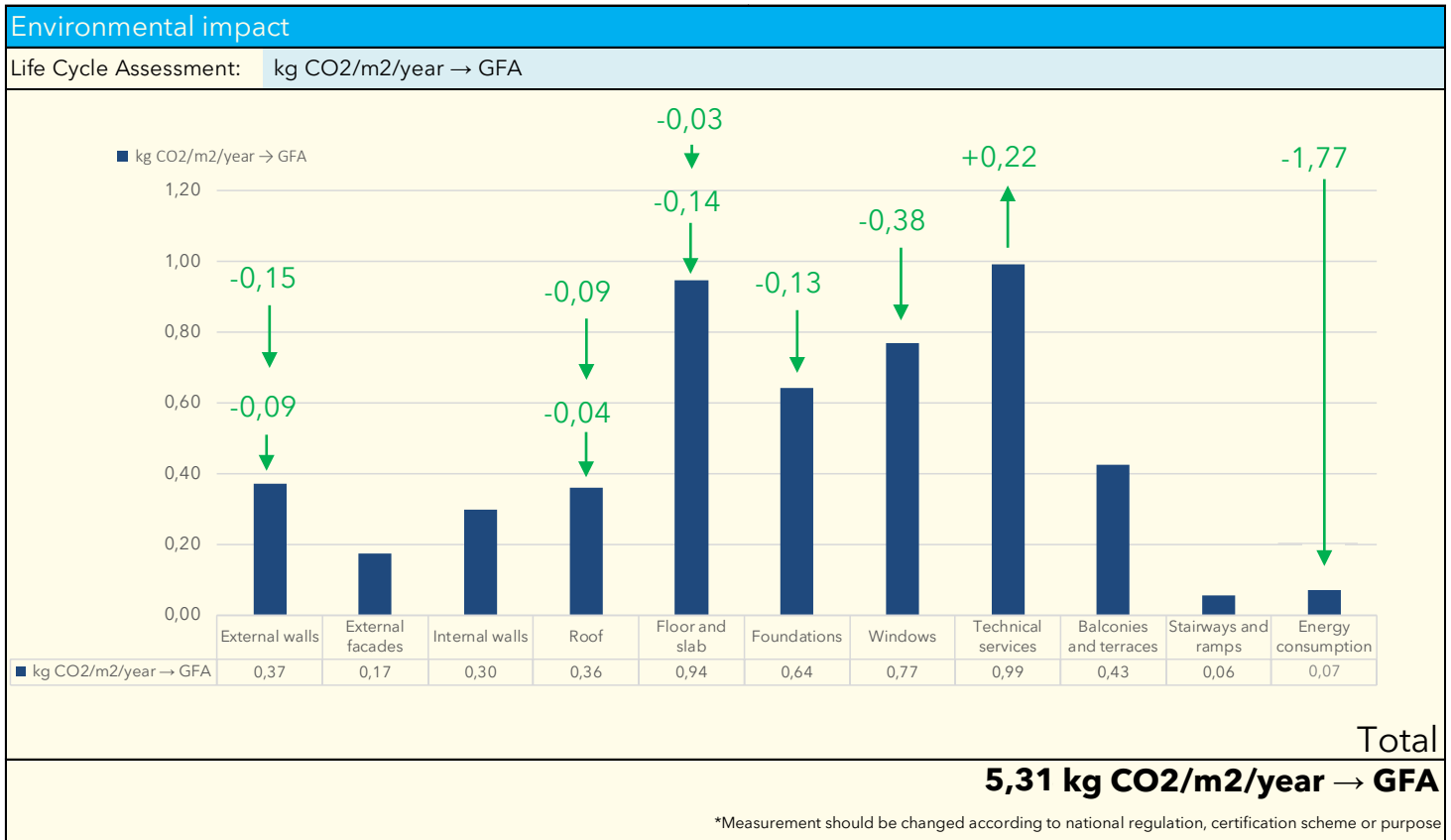
1: DK industry standard. Partial LCC performed around mid-stages;
 2: DK industry standard. Full LCA auditing performed around technical design;
 3: Applied across 100+ countries. Full LCA auditing performed around technical design.

Baseline – best current practise



Building part	Material type	GWP/m2 (50 yrs)
External wall	Wooden frame	31,5
External wall	Reinforced concrete	87,20
External facade	Wood planks	13,00
External facade	Fibrecement board	10,00
Internal walls	CLT element	57,00
Roof	Wooden structure	58,40
Roof	Fibrecement cladding	22,00
Floor	Wooden structure	36,00
Floor	Concrete structure	76,00
Floor	Concrete slab	141,00
Floor	Wood planks	18,00
Floor	Ceramic tiles	27,00
Foundation	Concrete foundation	Reference
Windows	Tripple Glazing, wooden-alu	207
Balconies & terraces	Aluminium with wood flooring	528,40
Energy	Electricity grid	9,85
Energy	District heating grid	82,36
Technical services	-	Reference
Stairways & ramps	-	Reference
Renewables technical	-	-

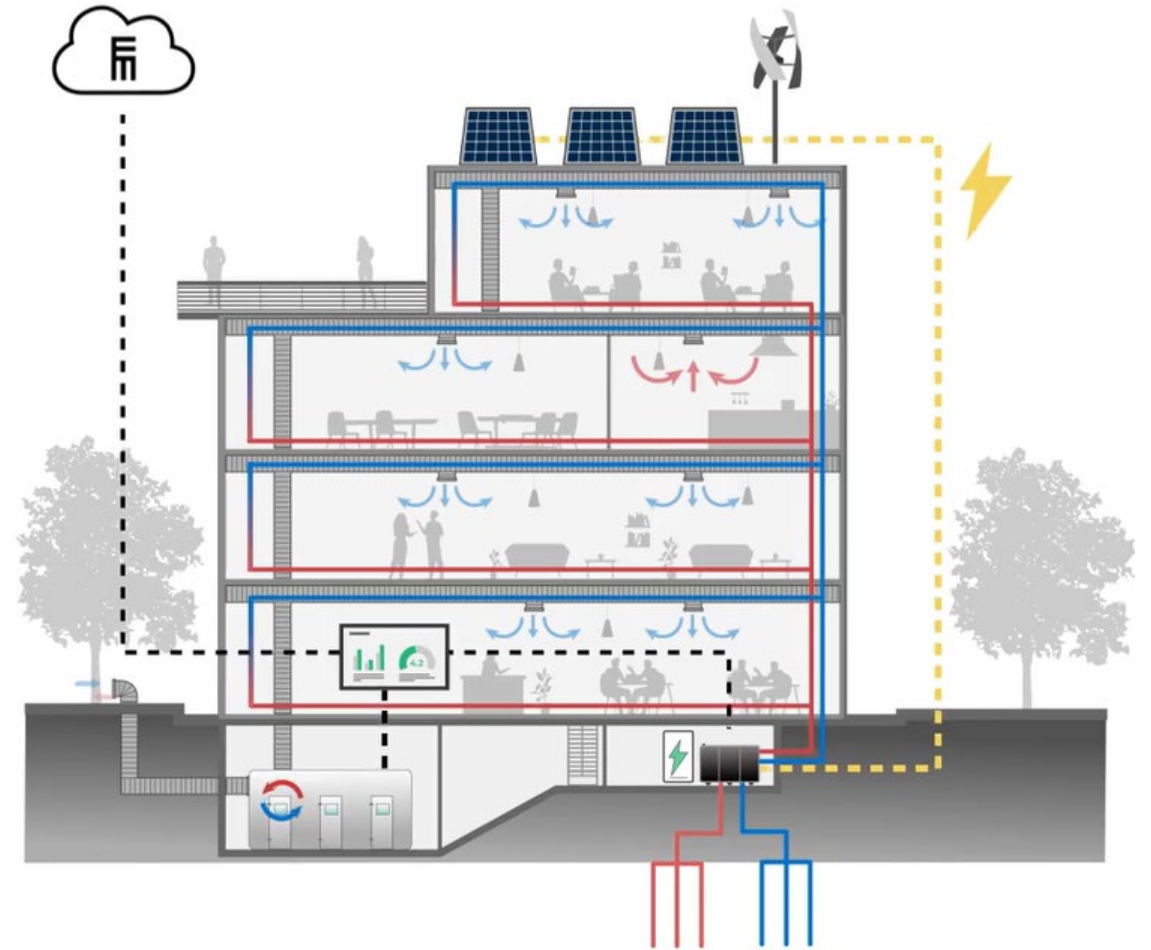
Baseline - with many adjustments



Building part	Material type	GWP/m2 (50 yrs)
External wall	Wooden frame	14,06
External wall	Reinforced concrete	70,73
External facade	Wood planks	13,00
External facade	Fibrement board	10,00
Internal walls	CLT element	57,00
Roof	Wooden structure	37,55
Roof	Fibrement cladding	22,00
Floor	Wooden structure	19,04
Floor	Concrete structure	76,00
Floor	Concrete slab	141,00
Floor	Wood planks	18,00
Floor	Ceramic tiles	27,00
Foundation	Concrete foundation	Sweco
Windows	Double Glazing, wooden-alu	138
Balconies & terraces	Aluminium with wood flooring	528,40
Energy	Solar PV onsite	0
Energy	Heat pump onsite	0
Technical services	-	Reference
Stairways & ramps	-	Reference
Renewables technical	Solar PV	154,58
Renewables technical	Heat pump	352,37

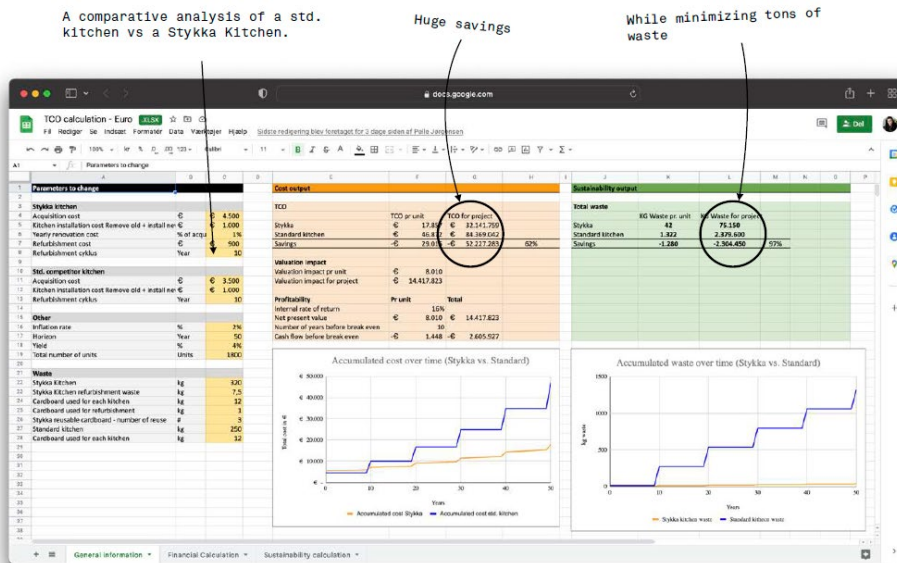
Energy Machines

- Decoupled district heating
- Energy-as-a-service contract
- Local self-sufficiency expected at approx 75%
- Combining heating, cooling, ventilation and PV production in one integrated software platform
- Elements are PV panels, heat pumps, geothermal storage, heat capture from ventilation

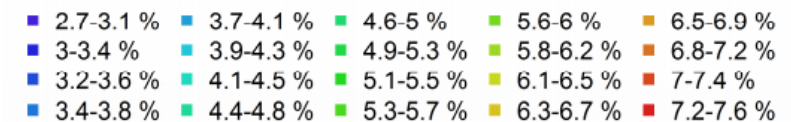
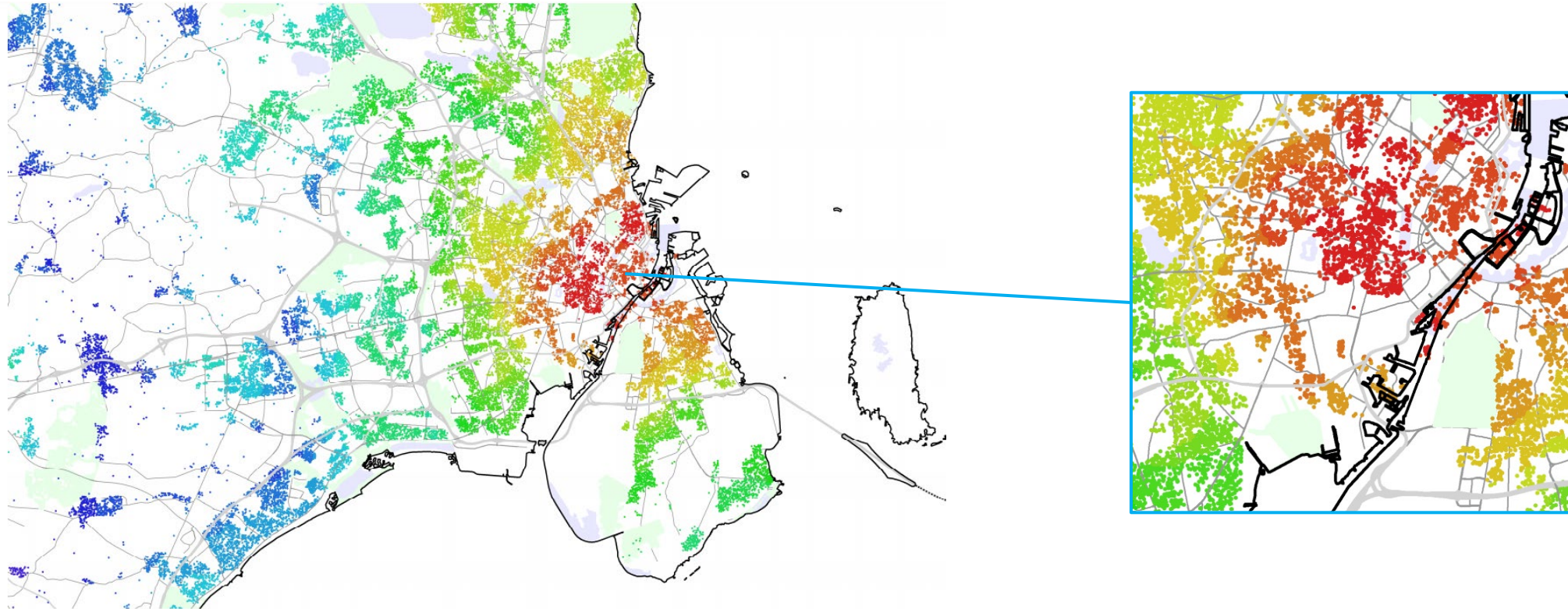


Circular Kitchens

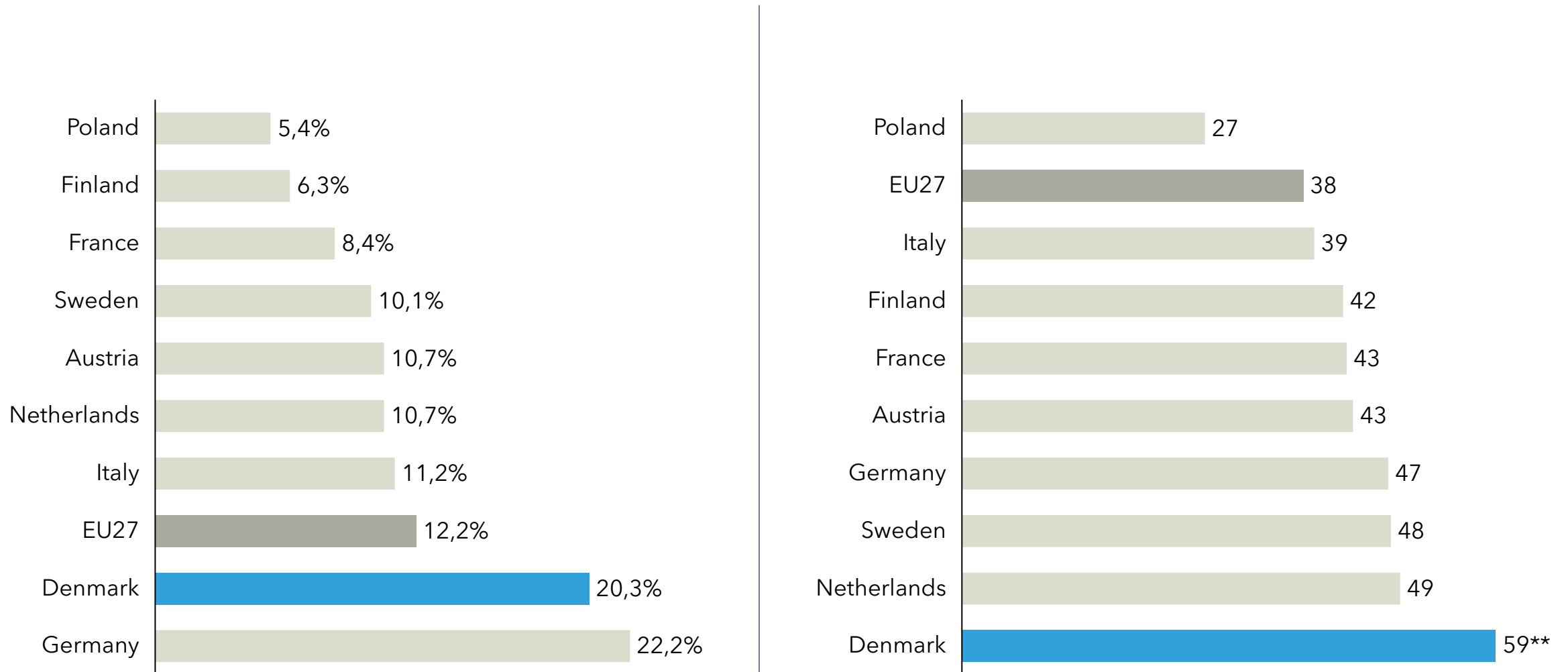
- Initial cost versus life cycle costing
- Choice of quality kitchen x2 the price
- Cost neutral to Home.Earth over 15 years timespan
- Significant savings for the tenants



In Copenhagen apartments have increased 7.3% in value per year since 1992
 - which is equivalent to 667% siden 1992



Danish statistics on housing burden levels and personal square meters



* Defineret som andelen af husholdninger der benytter mere end 40% af sin disponible indkomst på boligomkostninger

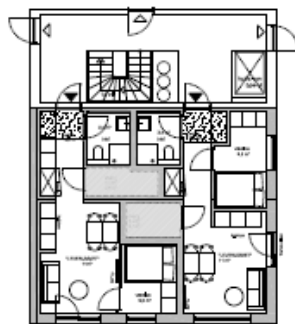
** Diskrepansen til foregående side skyldes at den gennemsnitlige boligstørrelse opgøres til 118,1 m² på Eurostat og 112,5 på Danmarks Statistik

Kilde: Eurostat (ILC_HCMH02)

1-værelses (43 m²)
studio med hems, altangang og fransk altan



2-værelses (46 m²)
1 plan med depot og fransk altan



2-værelses (70 m²)
1 plan med altangang og 'forhave'
mulighed for ekstra værelse



3-værelses (83 m²)
1 plan med altangang og 'forhave'
og fransk altan



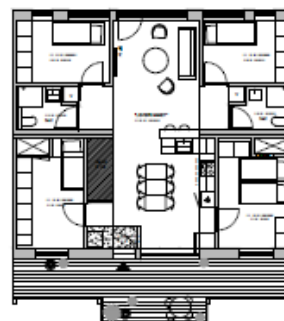
3-værelses (67 m²)
2 plan med ankomst og
opholdsrum i terræn



4-værelses (95 m²)
1 plan med altangang og 'forhave' og
2 franske altaner



5-værelses (128 m²)
1 plan med altangang og 'forhave', to
badeværelser og fransk altan

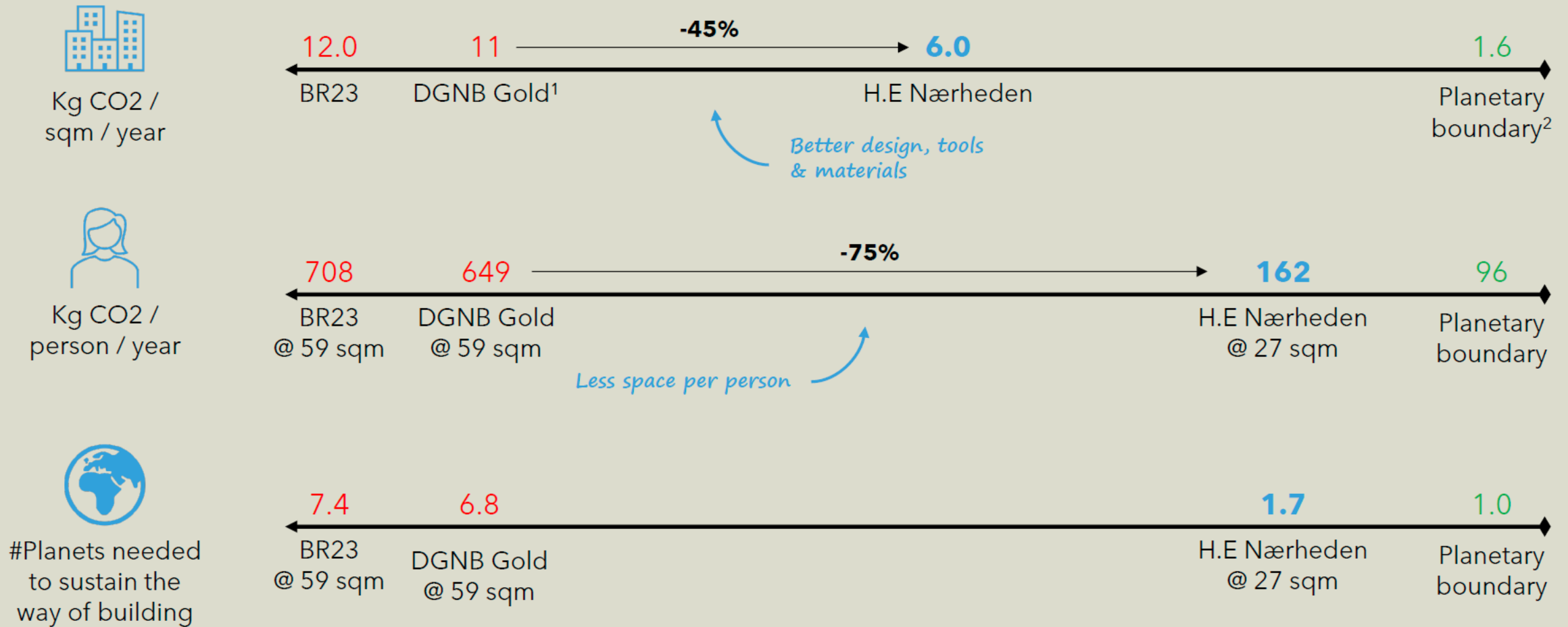


1-værelses, 43 m²
2-værelses, 46 m²
2-værelses, 46 m²
2-værelses, 70 m²
3-værelses, 83 m²
3 værelser, 67 m²
4-værelses, 95 m²
5-værelses, 128 m²

Planetary impact:

Our first project will be 75% better than the current sustainability "gold standard"

LCA: Comparing our first project (Nærheden) to industry standards and planetary boundaries

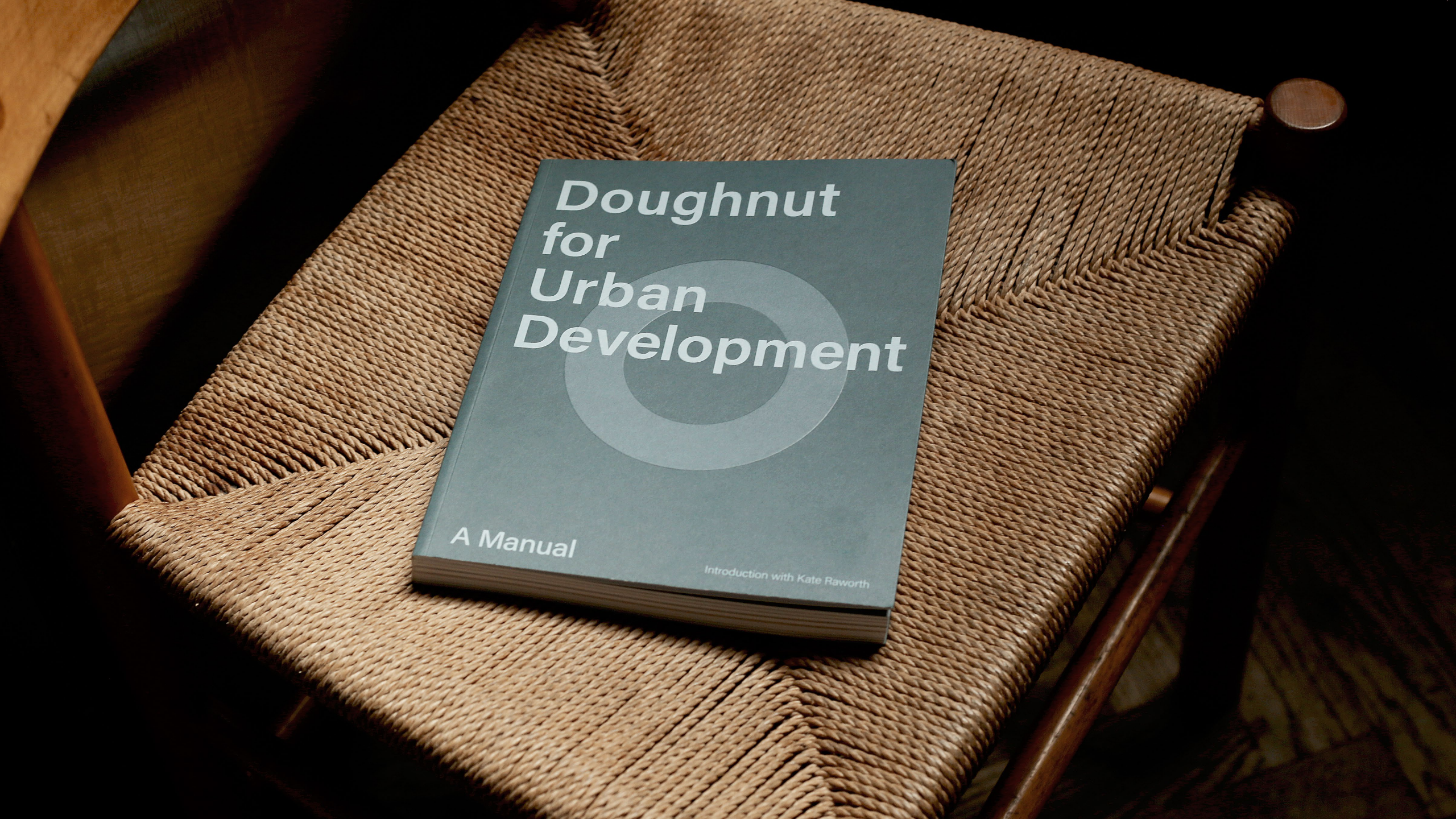


1: LCA boundary for embodied carbon/materials of 9.2 kg CO₂/sqm/year, no target for operational carbon but industry average 1.8 kg CO₂/sqm/year; 2: Assuming 59 sqm per person

HOME.EARTH

WE DO HOMES THAT ARE PEOPLE AND PLANET POSITIVE

Home.Earth

A photograph of a book titled 'Doughnut for Urban Development' resting on a woven chair seat. The book cover is a muted teal color with a large, faint circular graphic in the center. The text is white and sans-serif. The book is positioned diagonally on the chair, which has a light brown, textured woven seat and dark wooden legs. The background is dark and out of focus.

Doughnut for Urban Development

A Manual

Introduction with Kate Raworth

Download all the open-source resources

The Doughnut for Urban Development is an open-source project and all the resources can be downloaded for free. We hope they will be valuable to you - and that you will help us share them with relevant people and organisations.



Manual

A digital download of the Manual in Danish and English

[Download \(EN\)](#)

[Download \(DK\)](#)



Appendix

The Appendix provides the scientific basis for the content described in the Manual

[Download \(EN\)](#)



Database

The Database gives an overview of the frameworks behind the impact areas described in the Manual

[Download \(EN\)](#)



Toolbox

The Toolbox contains the Biodiversity Tools developed as part of the project

[Download \(EN\)](#)

home.earth/doughnut