



Sustainability Program @ VDL ETG

Beyond compliance

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2 September 2026

KRACHT DOOR SAMENWERKING

Contents

- Company overview
- VDL's sustainability program
- Overview of T&D sustainability initiatives
- Examples of innovation projects on sustainability

FACTS AND FIGURES 2024: VDL GROUP

○ — **1953** — ○ — ○

Family business VDL Groep
was founded in 1953



53% of our products
Are exported to **112**
countries around the world



100+

We consist of more than 100 companies

14.241

Employees in 20 different countries



Combined revenue
€4,3 billion



Net Result
€66 million



VDL Groep ranked #9 in
R&D investment among
Dutch companies 2025



VDL Groep is in the top five on the
Dutch reputation ranking

Source: RepTrak

FACTS AND FIGURES 2024: VDL ETG



A global **design & manufacturing** company, cooperating with high-tech companies

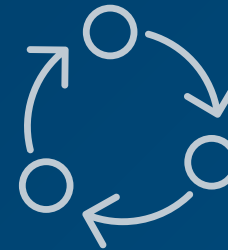


> 5000

Employees in 6 different countries



Unique combination of **technical design knowledge** and a high level of **manufacturing craftsmanship** under one roof for complete **lifecycle management**



Share of VDL turnover

%54



T&D Engineers

> 600



Production and staff

> 4300

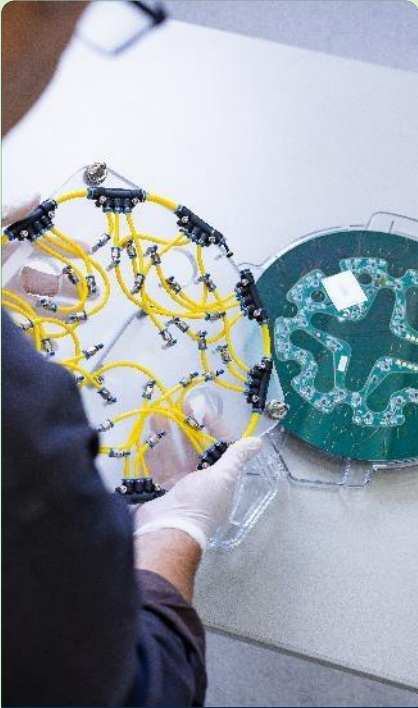


Production surface area

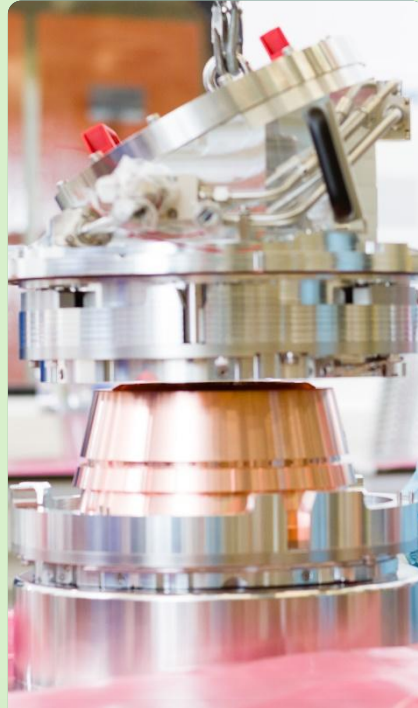
> 250,000 M²

VDL Enabling Technologies Group (ETG)

Key technology markets



Semiconductor Capital Equipment



Analytical Equipment



Medical Equipment



Science & Industry



Aerospace

VDL Enabling Technologies Group

Contract manufacturing and contract development –all under one roof – for parts, modules, assemblies and full systems



Multiple ways to engage

- Build to Print
- Early supplier involvement
- Design-to-spec
- Product lifecycle management
- Roadmap R&D



Proven way of working

- A systems approach
- In multidisciplinary teams
- Product Generation Process
- Full functional qualification



Wide knowledge network

- Universities and institutes
- National labs
- Fellow positions
- Joint research programs

VDL ETG USA
WEST COAST

VDL ETG USA
EAST COAST

VDL ETG PROJECTS
VDL ETG PRECISION
VDL GL PRECISION

VDL ETG ALMELO
VDL ETG EINDHOVEN
VDL ETG TECHNOLOGY & DEVELOPMENT

VDL ETG SWITZERLAND

VDL ETG SUZHOU

VDL ETG VIETNAM

VDL ETG SINGAPORE

Manufacturing

Design/Engineering

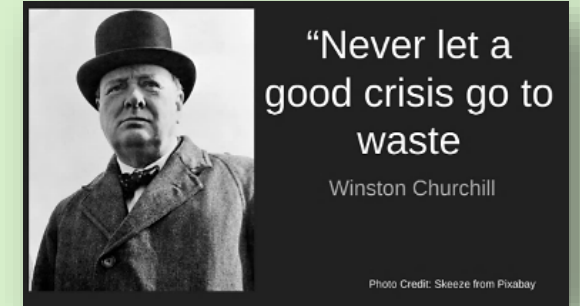
Marketing/sales

Why working on sustainability

Legislation demands, policy stimulates, customer asks

- Existing (EU) regulatory requirements
 - Corporate Sustainability Reporting Directive (CSRD) based on SDGs
 - Addendum climate change and LCA with ISO 9001, 14001, 14044
 - Right to Repair Directive
- Upcoming regulatory trend, from company-level (CSRD) to product-level sustainability reporting
 - Digital Product Passport, LCA, PFAS-ban
- OEM's committed to reduce their own environmental footprint
 - E.g., ASML to remain listed on Dow Jones Sustainability Index
- Increasing attention to the environmental impact of products and services (waste, emissions, rare metals, geopolitics)
- Corporate social responsibility, responding to societal expectations

EU opportunities during geopolitical crises



- Putting **digitally enabled circularity** at the centre of Europe's economic transition
- Reducing strategic EU **dependence**
- Managing Europe's ecosystems and **natural resources** sustainably
- Creating a **resilient** and **competitive** European industry ecosystem
- Meeting climate objectives: **55%** less GHG emission in 2030 & **100%** in 2050 (NL)

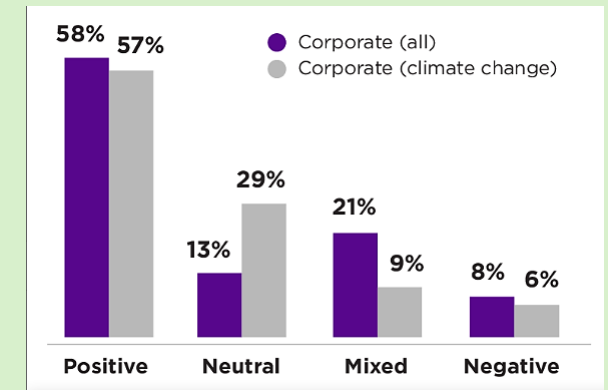


The 'business case' for sustainability

- Reduces costs by resource savings (energy, water, BoM, supply chain)
- Creates side-line revenue streams (e.g. product re-use, closed-loop manufacturing, selling waste)
- Fosters ground for NBD (e.g., demand for new product designs, redesigning equipment)
- Boosts (young) talent attraction
- Builds resilience in business (e.g., future growth, in crisis time)
- Responds to investor expectation, thus a higher company valuation and chance of granting credits/loans
- Enhances company reputation and brand recognition
- Contributes to the company's digital/data-driven transition

Sustainability: 'investment' rather than 'cost'

Impact on financial KPIs as result of investing in sustainability



➤ Proven positive impact on corporate value creation

- A review of 1000+ studies found positive relationship between ESG and financial performance for 58% of the studies ([Rockefeller 2021](#)).
- '... significant positive relationship ...' (<https://doi.org/10.54518/art.9.1.2025.648>)
- '... substantially mitigates risk-related factors and costs of enterprises ...' (<https://doi.org/10.1016/j.jclepro.2025.145804>)
- '... Investing in ESG promises financial return, both value and profitability' (<https://doi.org/10.1016/j.bir.2022.11.006>)
- '... CSR directly impacts a company's financial performance, and this impact becomes more significant as the company's ESG scores improve' (<https://doi.org/10.1002/csr.2446>)
- ...

Sustainability program of VDL Group

- Complying with legislative requirements (CSRD)
 - CSRD: Corporate Sustainability Reporting Directive
 - Systematic data collection and reporting on 10 topics based on the ESG framework (Environmental, Social, Governance)
 - Reporting will be a formal part of the VDL Annual Report as of FY2027.
- Making buildings and office operations more sustainable
 - Solar panels, sustainable procurement, waste recycling, air conditioning, water management, sustainable office/canteen consumption, etc.
- HR incentives and schemes
 - Public transport reimbursement, bike plans, discount on EVs, occupational health program, sports events, workplace initiatives, etc.

Chosen ESG topics by VDL Group

10 material topics chosen through DMA for CSRD reporting



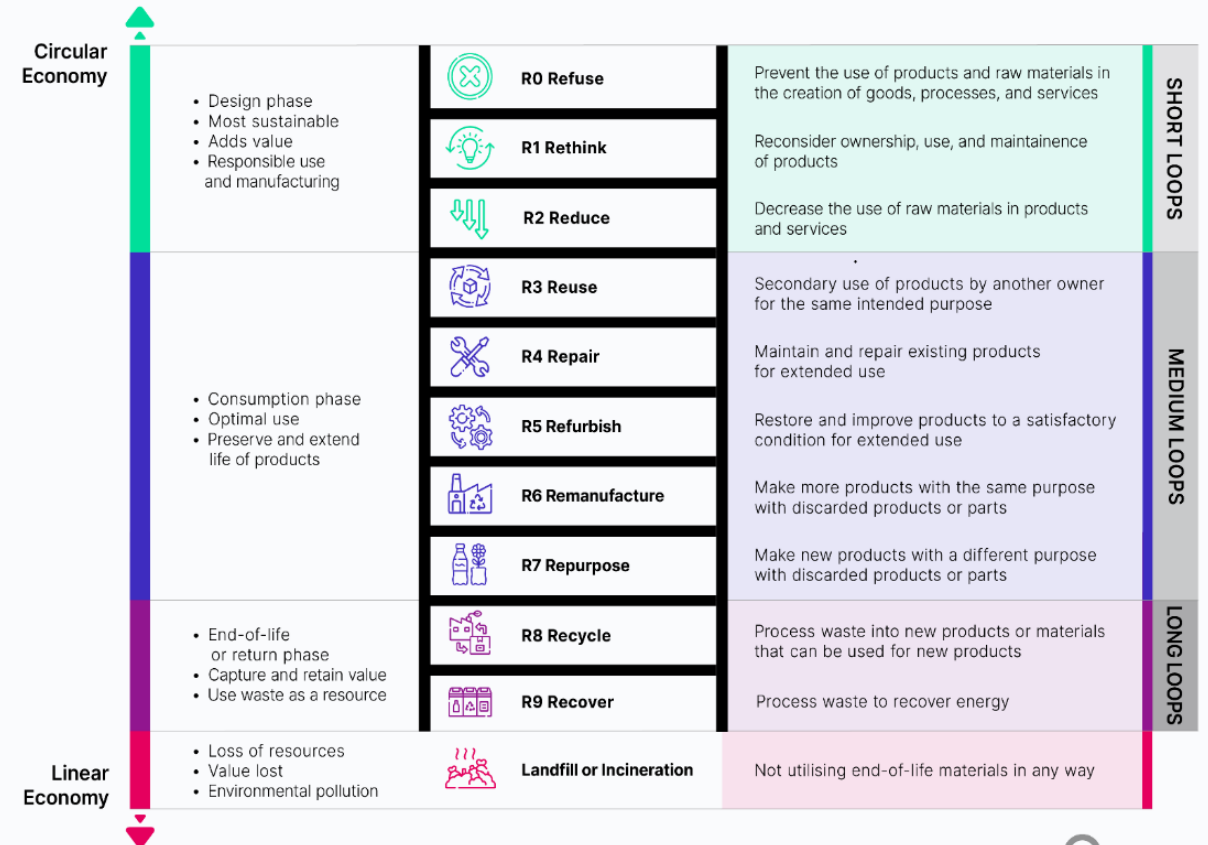
E: Circularity

KPI's

Steering KPIs

- Percentage (%) of secondary materials (metals, plastics, packaging)
 - VDL goal in 2030: **50% recycling rate**
- Percentage of recyclable waste streams
- Number of implemented R-ladder initiatives

10 R Strategies for Circular Economy



Example E: Climate change

Focus areas

- Scope 1,2,3 emissions
- Energy saving (EED)
- Generating sustainable energy
- New technologies: salt battery, waste-heat use in manufacturing processes
- Purchasing sustainable energy



E: Energy consumption

Focus areas

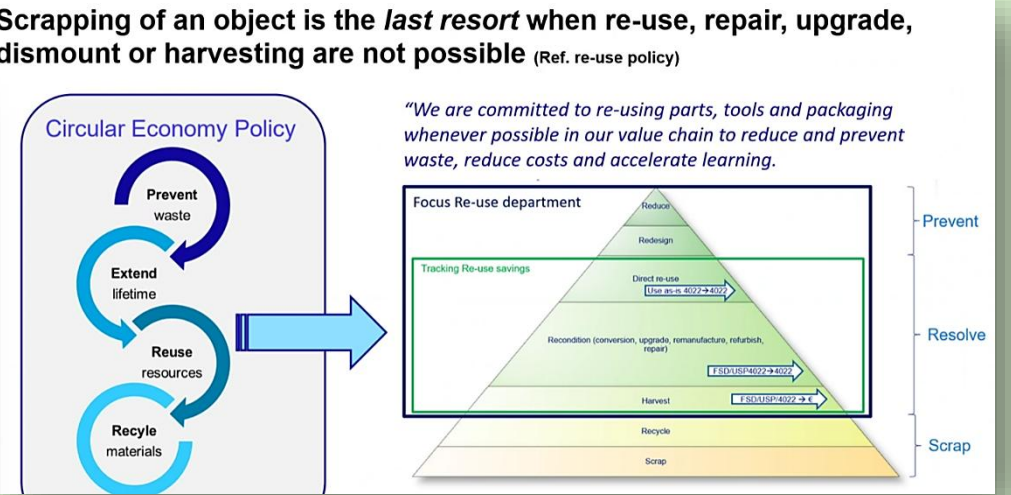
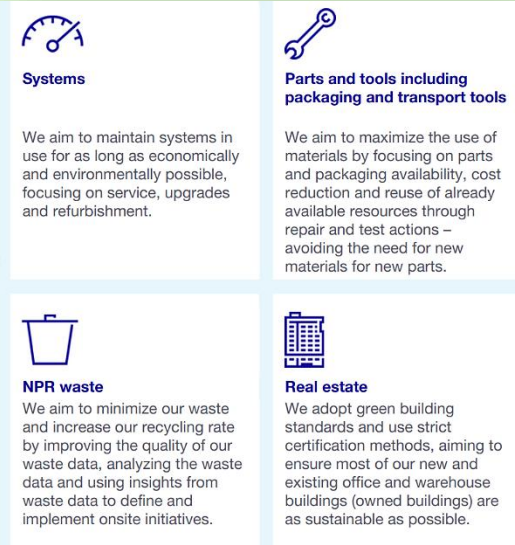
- Energy-efficient machines
- Energy-saving technologies
- Smart infrastructure



Sustainability program of ASML

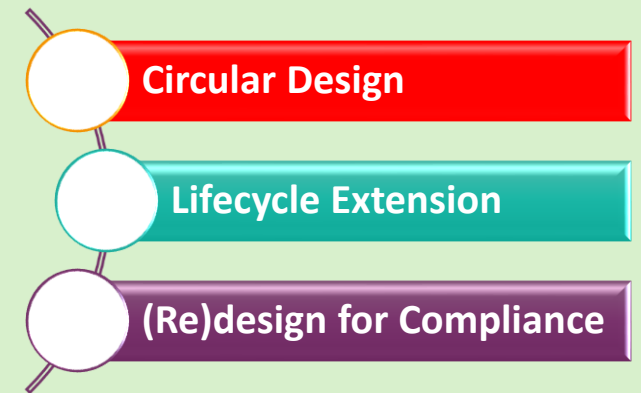
Highlights

- Based on the ESG framework
- Extensive sustainability reporting: approx. 40% of the ASML annual report 2025
- Explicit dedication to circularity
- Well embedded in the organization



Sustainability program of VDL ETG T&D

- Sustainability program of VDL Group
 - Systematic data collection and reporting on ESG topics
 - Building & office operations
 - HR schemes
- T&D-specific activities
 - **Circular design** of modules upon customer request (role as Tier1 supplier)
 - **Lifecycle extension** of modules and machines
 - **Redesign for compliance** with (upcoming) regulations/legislations



Contribution of T&D

First time right principle!

‘More than 80% of the environmental impact of a product is determined at the design stage’

Source: EU Ecodesign Directive

Examples of T&D-specific activities

- Modular design of wafer handler (WH)
- Model-based design: experimenting in a virtual environment, reducing physical prototype iterations
- Developing and implementing performance upgrades, often with refurbishment possibilities
- Setting up experiments on PFAS-free designs (EU legislation expected around 2027-29)
- Experimenting with friction stir welding (shorter duration, less welding smoke)
- Designing sustainable packaging
- Optimising throughput, yield & availability of WH (lifecycle support)
- Participation in innovation projects

Examples of ongoing innovation projects

(1, 2)

EU Horizon

- Developing procedures to increase the use of recycled aluminium in manufacturing lithography equipment
- Clarification of terminology for main types of aluminium alloy AW 5083
 - Market terminology based on **source**: primary (virgin) = high purity ; secondary (recycled) = low purity
 - Distinguishing third category based on **purity**: high-purity recycled
- Testing nanosecond pulsed laser cleaning for stain removal on aluminium
 - Investigating nanosecond pulsed laser cleaning for a more sustainable removal of stains on aluminium large frames (vacuum chamber), compared to existing chemical or mechanical methods.

Examples of innovation projects

(3, 4)

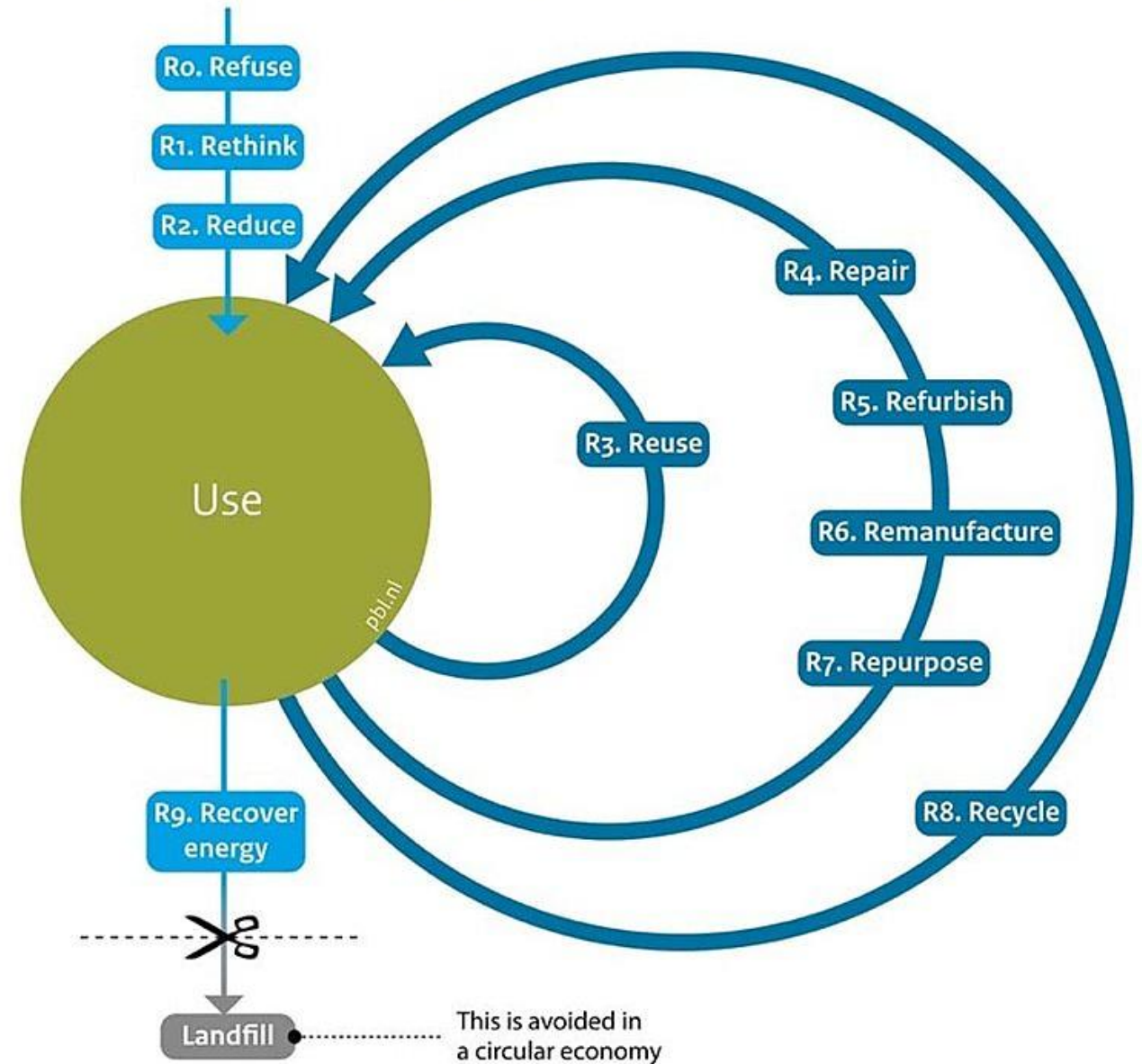
- Transform lifecycle support from performance improvement to continuous system improvement
 - Collect and analyze WH's performance data to improve performance on current systems and new designs.
 - Integrate updates and solutions into modular subsystem architecture, so it can be implemented across multiple project designs.

- Circular Business Program Semicon (CBPS)
 - Optimise Total Cost of Goods, increase material availability, and reduce CO₂ footprint and waste.
 - Moving from the linear model of 'Take, Make, Dispose' to one where we extract the maximum value from resources and rare materials used.

CBPS

- Moving from the linear model of 'Take, Make, Dispose' to one where we extract the maximum value from resources and rare materials used.
- Through pre-competitive joint innovation!

Circular economy: more than recycling



CBPS Program Structure

2026-2027



➤ Topic A: **Transition & Coalition Management**



➤ Topic B: **Value Stream Models**



➤ Topic C: **Triage Center for component reuse**

➤ Topic D: Circular Data & Digital Transformation

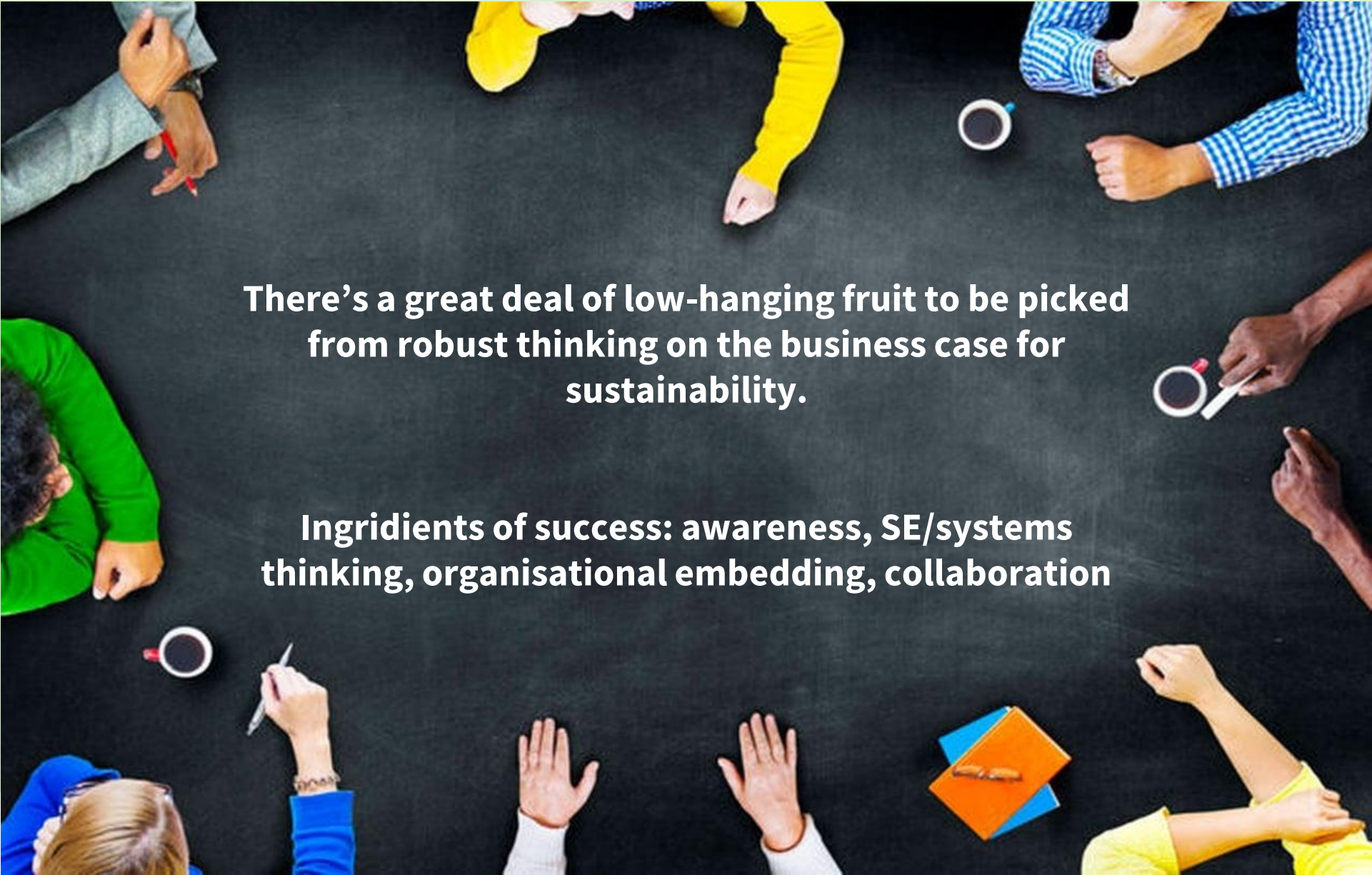
Next phase, 4-y ...

➤ Topic E: Circular Supply Network Design

➤ Topic F: Circular Product & System Design

➤ Topic G: Reuse4Scale – Digital Product Passport & reuse enablement

Lessons learnt so far



There's a great deal of low-hanging fruit to be picked from robust thinking on the business case for sustainability.

Ingredients of success: awareness, SE/systems thinking, organisational embedding, collaboration

Thank you!

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