

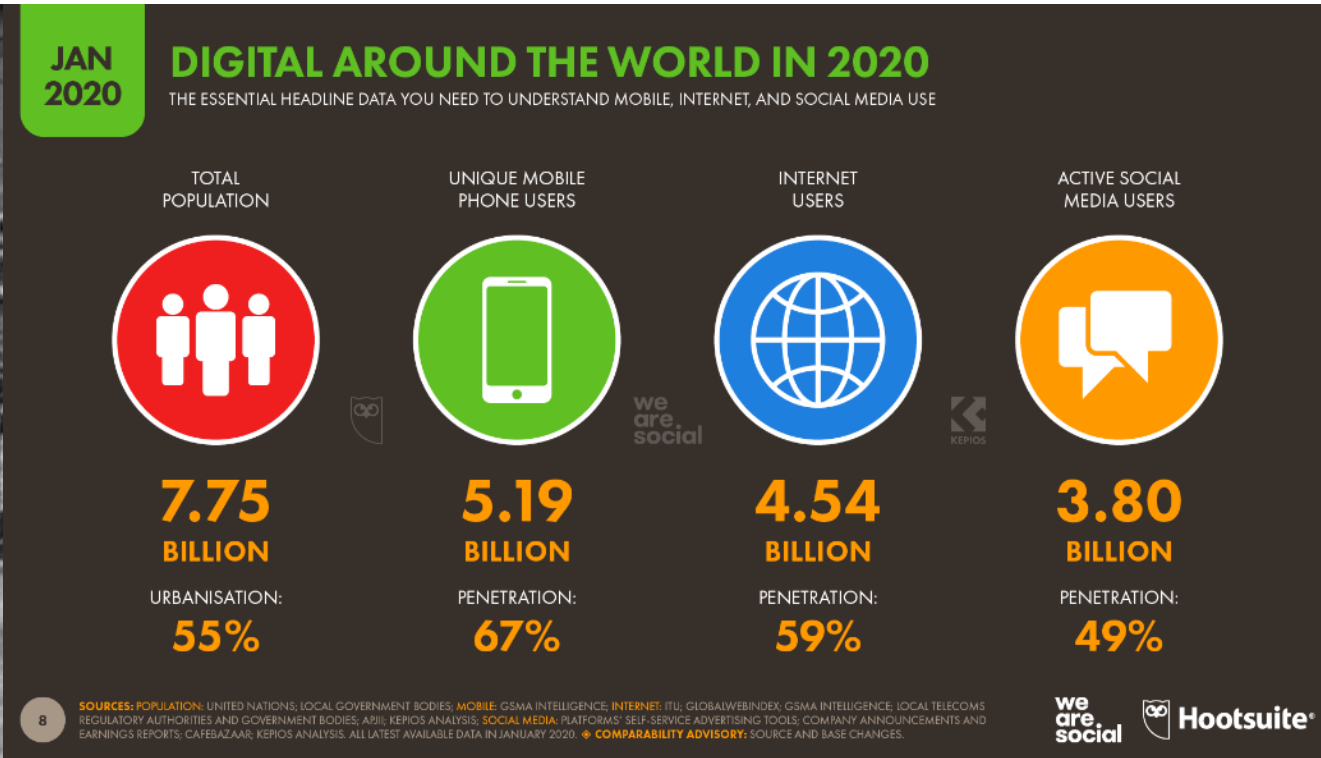
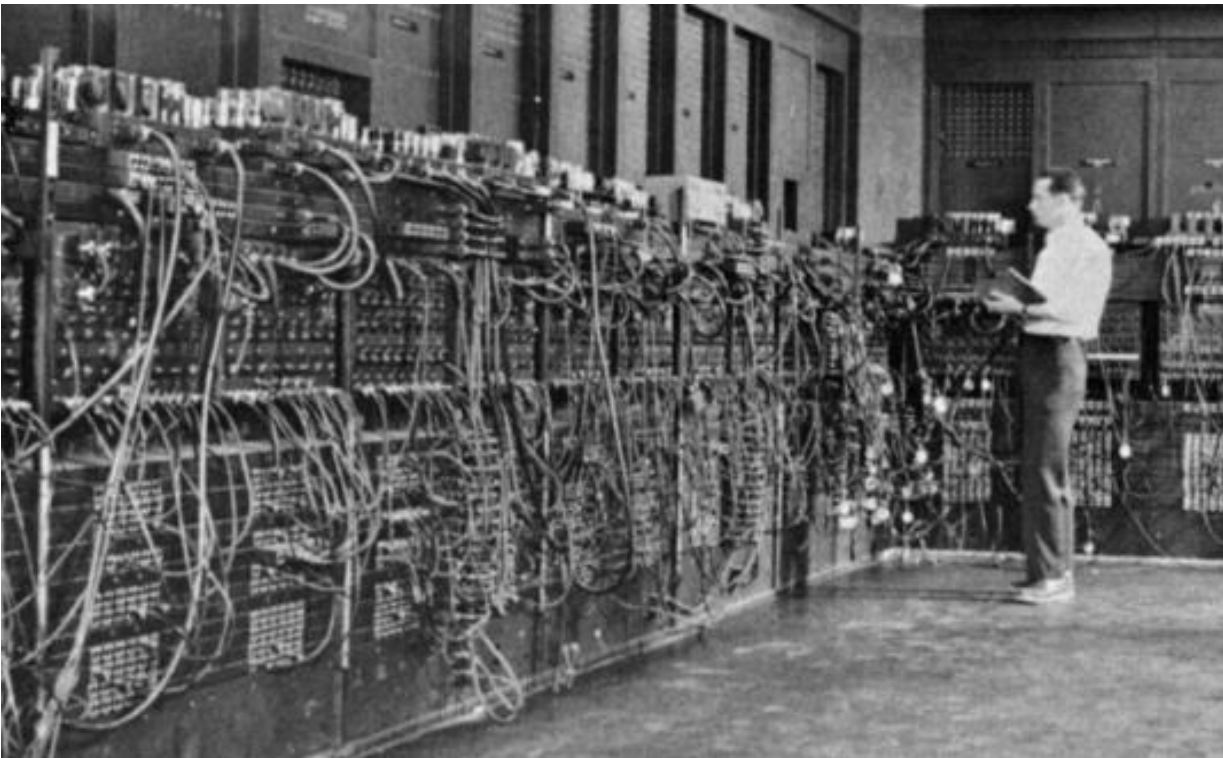
# Circular Data Centre Compass - a digital tool to model and assess data centre sustainability

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# Connectivity – 55% global population / data traffic = 4.2 trillion gigabytes / yr



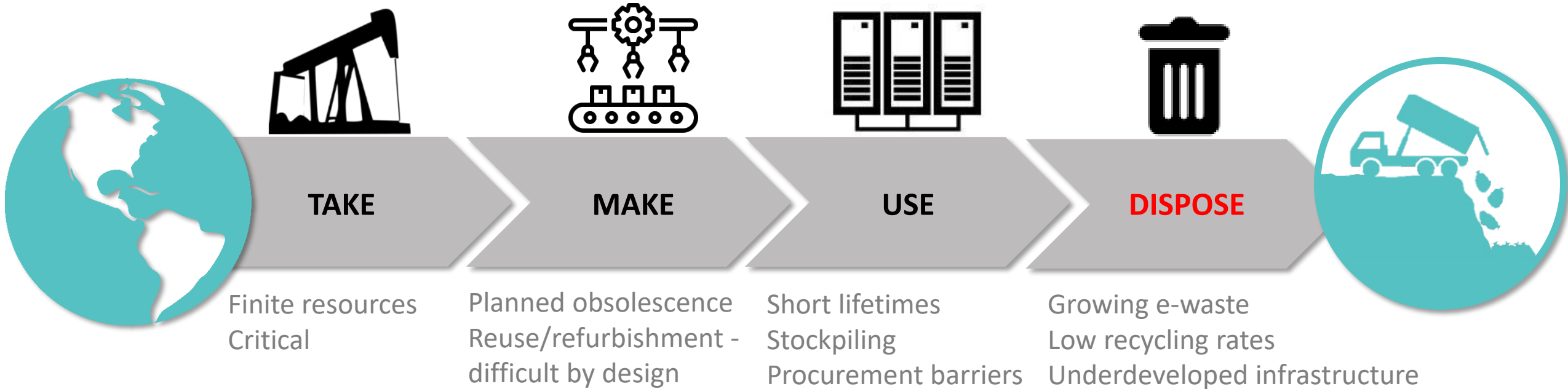
## Data Centres

7.2m globally / concentration in EU - UK, Germany, France & Netherlands  
2010-2020 – \$100bn investment in sector



## Speed of sectoral development & emphasis on service provision....

### Linear model of consumption

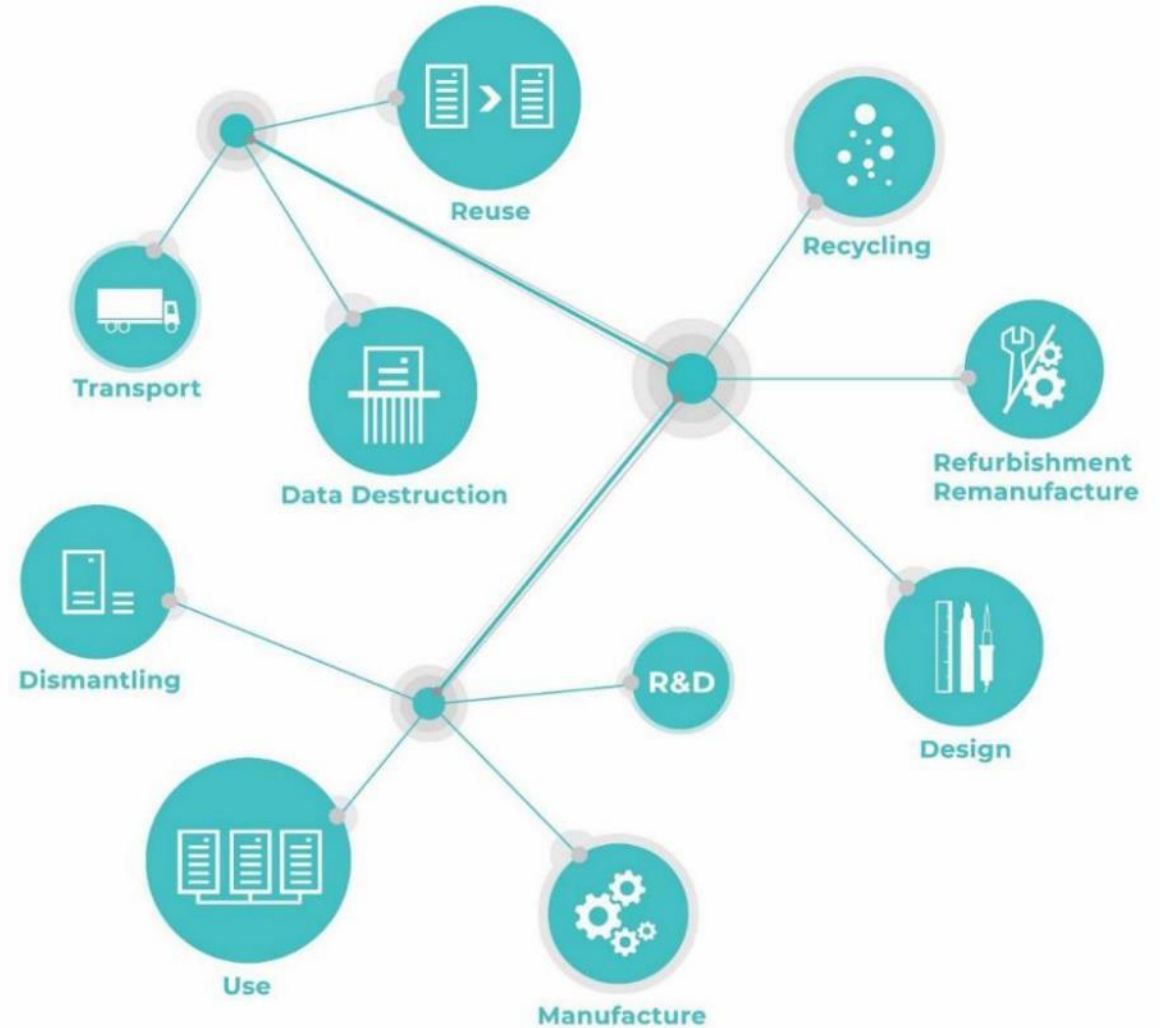


## CEDaCI

- unique, interdisciplinary, multi-output initiative
- uses **whole-life thinking**
- **brings together representatives from all DCI sub-sectors** to share knowledge
- accelerating development of sectoral Circular Economy

It will

- **reduce waste**
- **prevent supply chain problems**
- **secure uninterrupted DC operation and service**





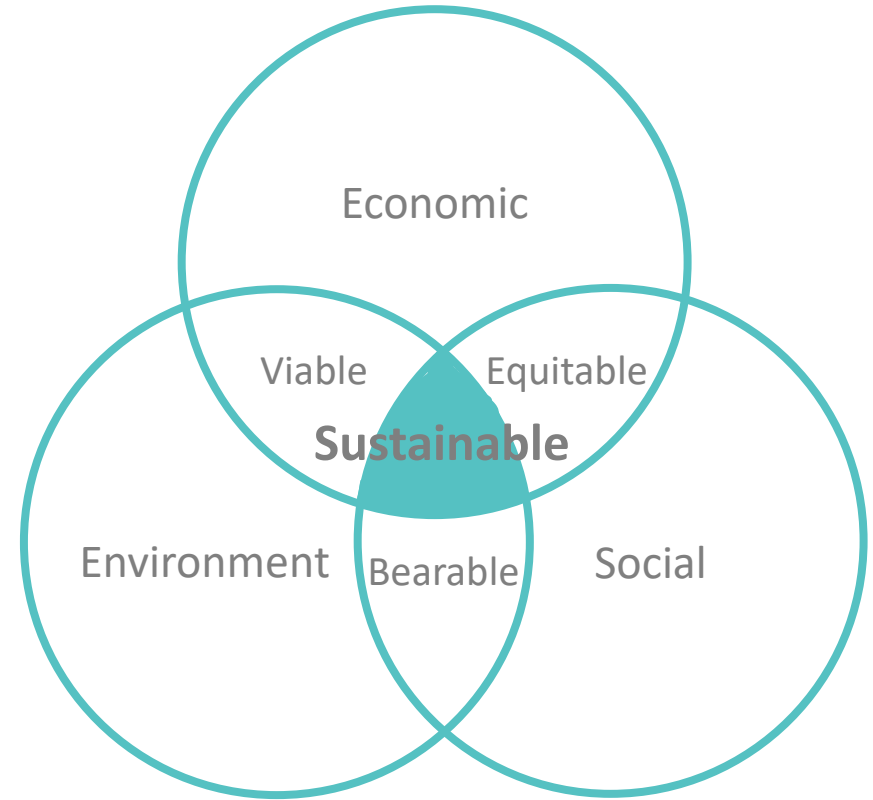
# CDCC

## Circular Data Centre Compass

### KEY OUTPUT – free on line resource

Product Sustainability and Circularity Indicator  
Enables business to compare environmental, social and economic impacts and materials' criticality of different servers

Identify preferred Circular business option based on company and/or performance requirements



**Life Cycle SUSTAINABILITY Assessment + Criticality Indicator**

## Primary source data collection – all partners

inventory building / improving recycling / CRM reclamation / building LCA, LCC and S-LCA models for Pilots (design / manufacture, second-life, end-of-life) and CDCC





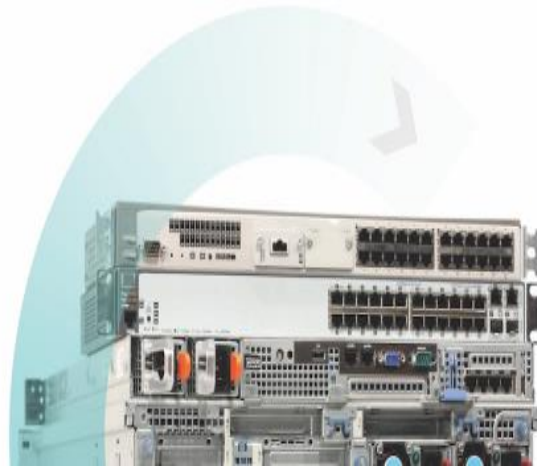
[CEDaCI home](#)

[Compass](#)

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# Welcome to Compass



Username

Exampleuser

Password

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Login





# Tool options

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Compare

Evaluator

End of life

## Compare

This part of the tool allows you to compare the environmental, economic

## Eco-design Evaluator

After a server has reached the end of its first life, different options can be

## End of Life

After a server has reached the end of its first life, different options can be



## Compare

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[How to use it?](#)

### Choose Servers to Compare:

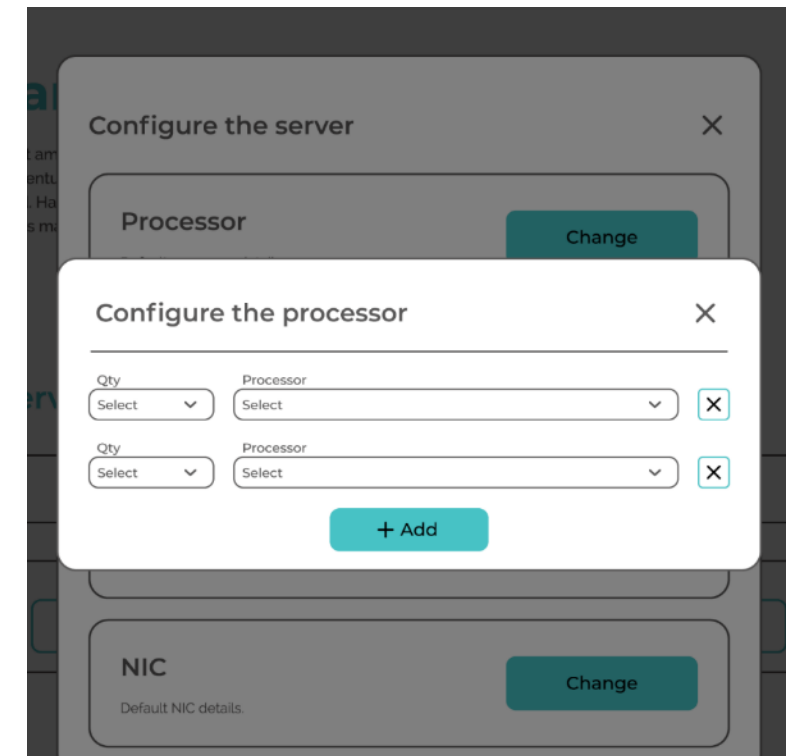
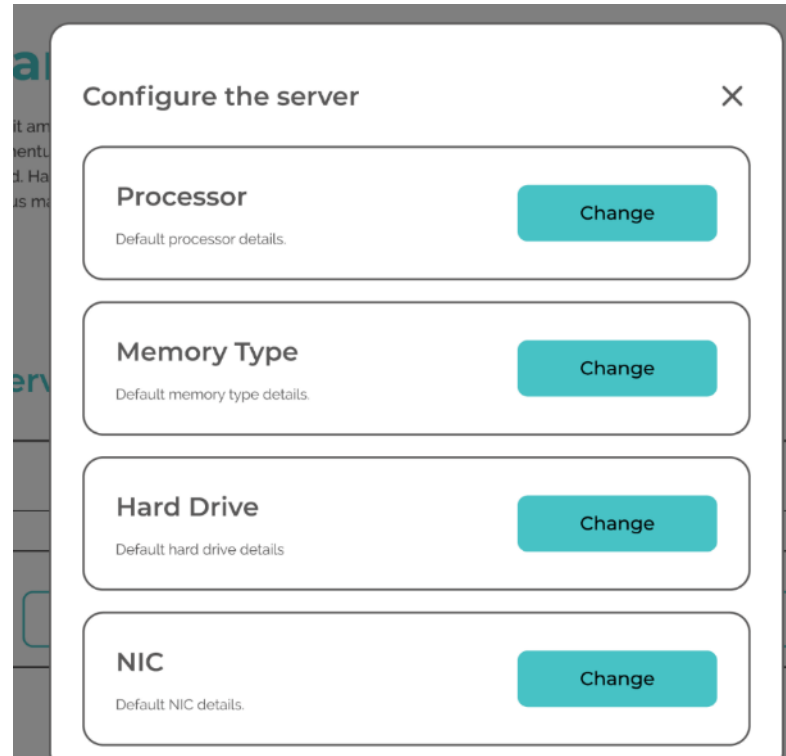
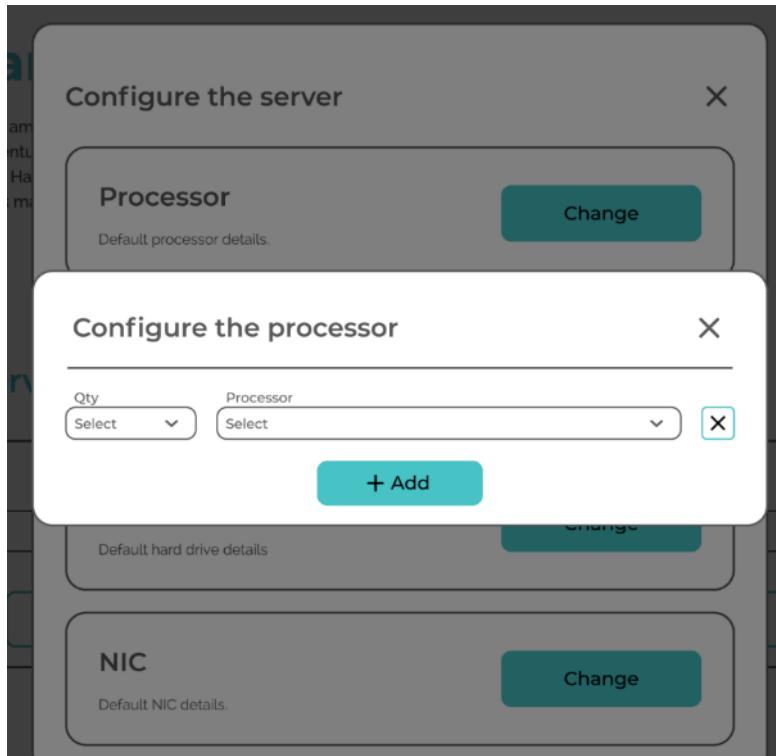
Server 1

Server 2


Compare tool uses LCA to assess entire life cycle of the equipment – extraction of raw materials, manufacturing/assembly, transportation, use and end-of-life stages

Circular Footprint Formula - accounts for benefits and burdens, resulting from the use of secondary and virgin materials, and recycling and energy recovery.


Compare to find out which equipment is most circular - **select** and **configure** two servers



## Compare specifications and impacts and **download** the full PDF report



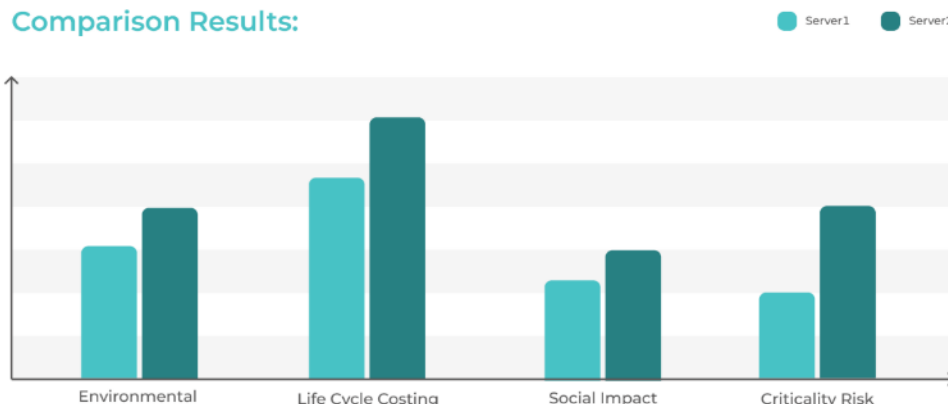
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Server Specifications	Server 1	Server 1
Manufacturing Year	Value	Value
Manufacturing Country	Value	Value
Provider Country	Value	Value
Provider Company	Value	Value
Dimensions (LxWxH)	Value	Value
Weight (g)	Value	Value
Chassis	Value	Value
Processor (Slots number)	Value	Value
RAM	Value	Value
PSU	Value	Value
PCB	Value	Value
Heat Pipe	Value	Value
System Cable	Value	Value
Plastic	Value	Value
Battery	Value	Value
Fan	Value	Value

### Comparison Results:



Legend: Server 1 (light blue), Server 2 (dark blue)

Category	Server 1	Server 2
Environmental Impact	Low	Medium
Life Cycle Costing	Medium	High
Social Impact	Low	Medium
Criticality Risk	Low	High

[Download](#)



## End of Life

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[How to use it? ↗](#)

### Scenario 1

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### Scenario 2

Server has reached the end of its first life. Compare total costs of

**End-of-Life (EoL)** tool encourages more sustainable considerations once a server reaches the end of its usable lifetime for a given user.

**Assess and compare** impacts and criticality risk of different end-of-life scenarios

- Refurbishment / reuse
- recycling - current industry methods
- recycling - CEDaCI recommendations
- landfill

## Compare sustainability categories

## Compare impact of E-o-L scenarios

### Choose Server:

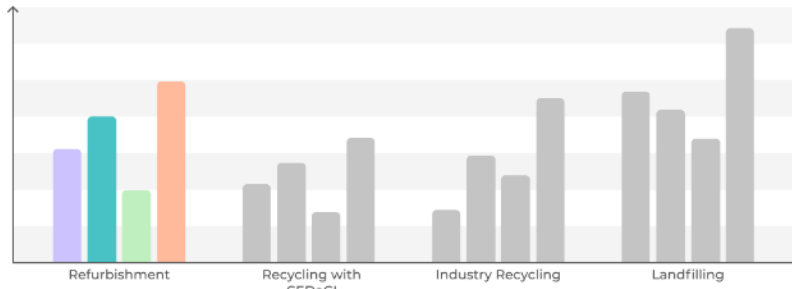
Server 1  
 [Configure](#) [Results](#)

### Choose Server:

Server 1  
 [Configure](#) [Results](#)

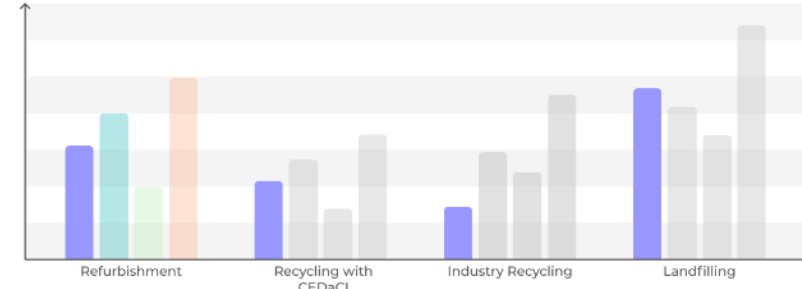
### Comparison Results:

● Environmental impact
 ● Life cycle costing
 ● Social impact
 ● Criticality risk



### Comparison Results:

● Environmental impact
 ● Life cycle costing
 ● Social impact
 ● Criticality risk



**Environmental**

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**Life cycle costing**

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**Social impact**

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**Criticality risk**

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**Environmental**

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**Life cycle costing**

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**Social impact**

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**Criticality risk**

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## Eco-design Evaluator

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[How to use it? ↗](#)

### Ecodesign Evaluator

consolidates EU Ecodesign Criteria in one place – easy for designers to follow

Tool includes Ecodesign guidelines from EU Circular Economic Action Plan and CEDaCI

#### Availability of Product Specific Informations

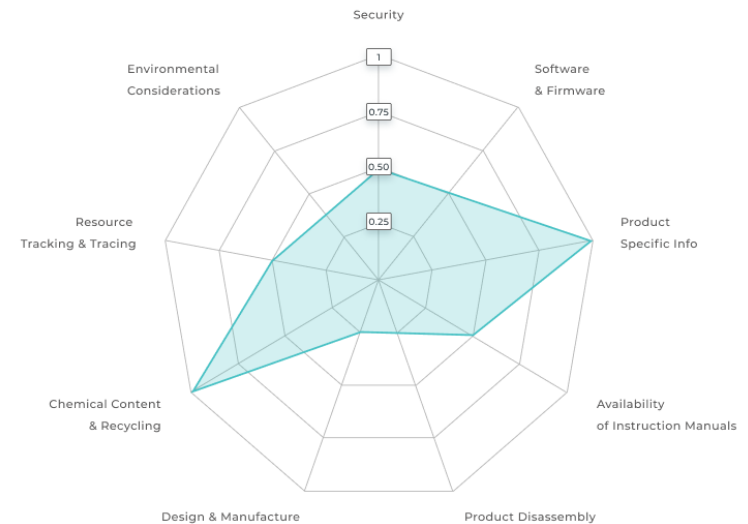
Is there information on these components?

How long is recycler specific information available for after the end if sale?

Is recycler specific information available for the indicative weight range of cobalt batteries?

Is recycler specific information point available for the indicative weight range of neodymium in HDDs?

◀   ●●●●●   ▶



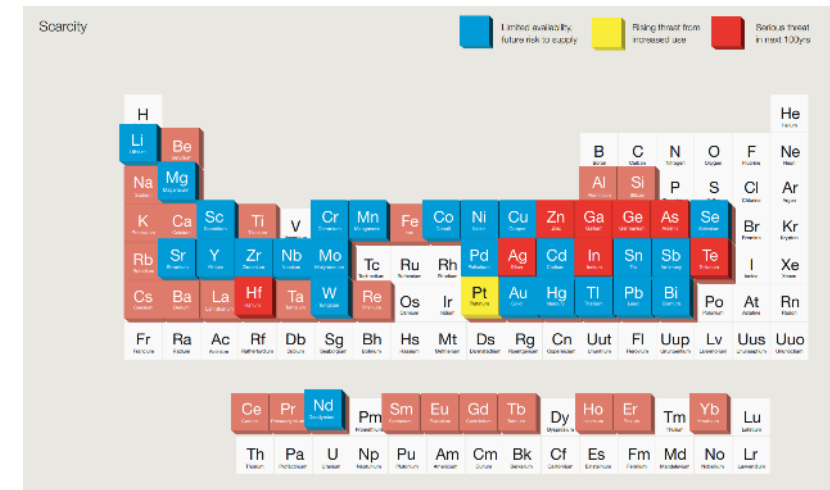
## Benefits / value of CDCC e-waste

Annual – 2020 ~50 million tonnes – 6kg per person  
Business as usual - 2050 – 120 million tonnes

Global - < 20% is formally collected and recycled  
Current value - >\$62.5 billion

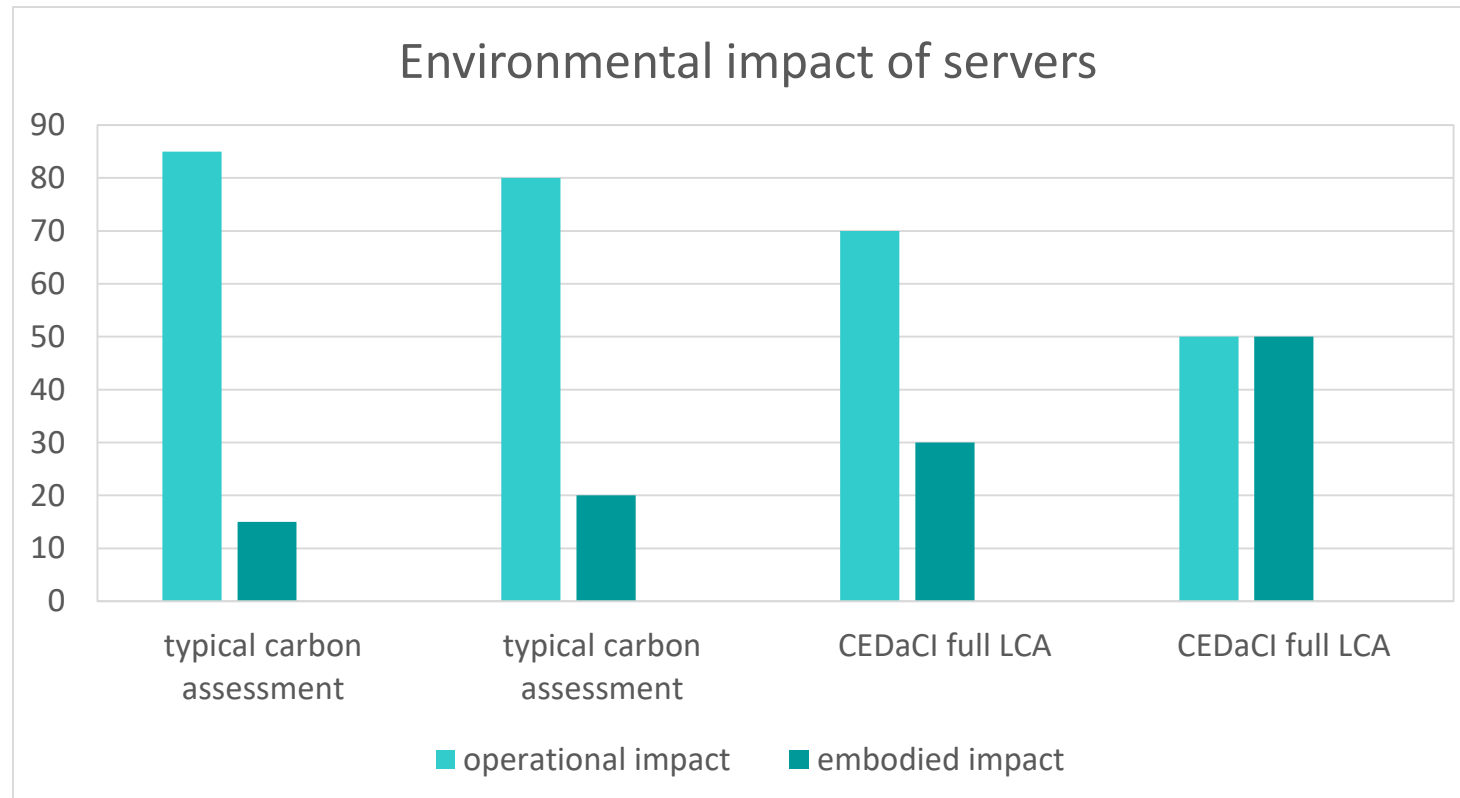
69 elements in EEE  
7-10 Critical Raw Materials

Export of e-waste

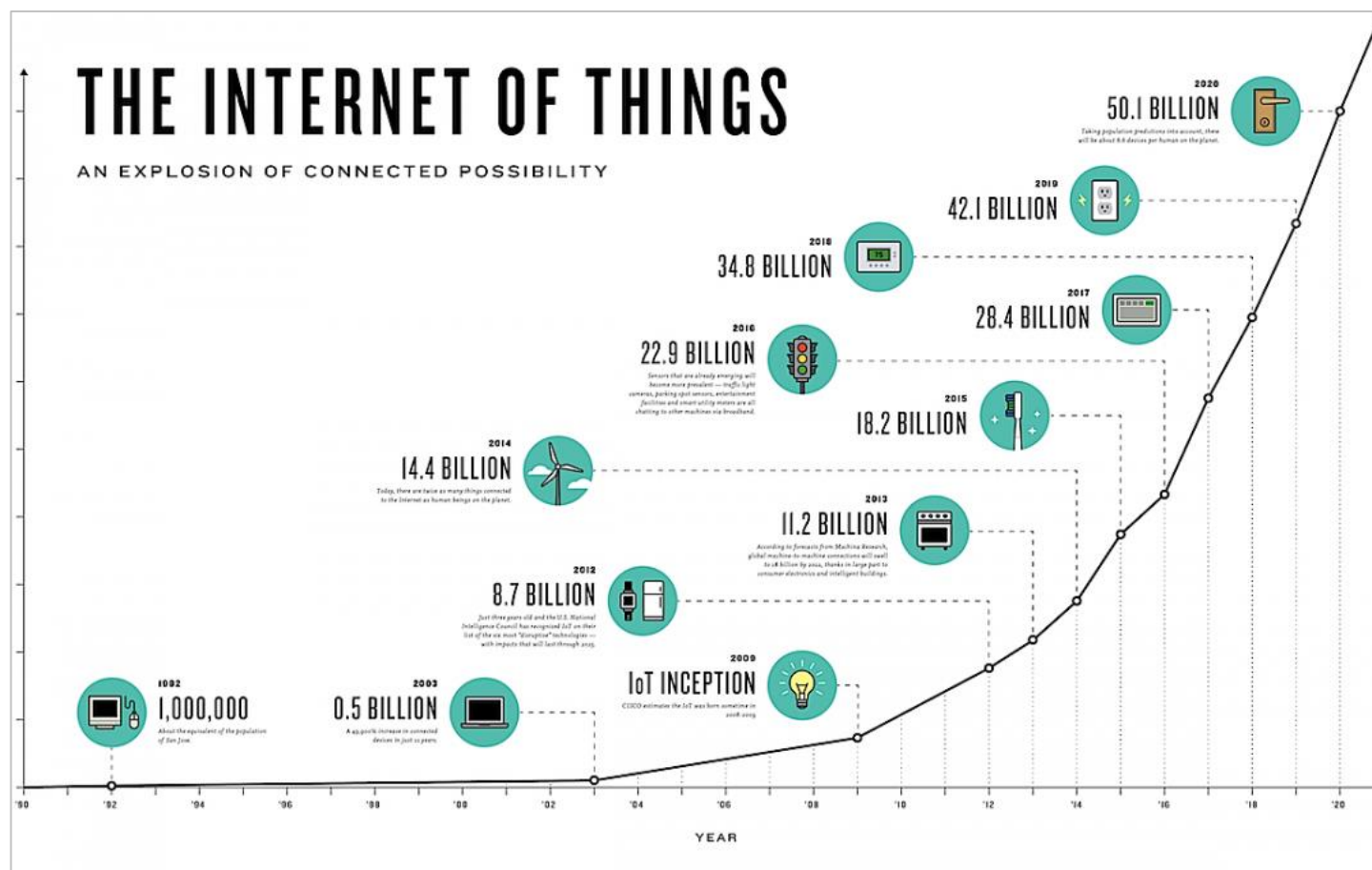




## Compare carbon assessments / preliminary LCA results – indicate much higher embodied impact



## DC growth – 300% in EU by 2025 / 500% global 2030



# CEDaCI – runs until Sept 2023

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