



BEYOND EXPERIMENTATION

Embracing Circular Manufacturing: Adopting Repair Solutions



















BEYOND EXPERIMENTATION

The program is simple The content resembles hard work and perseverance

An intro to set the scene

5 practical, solution-oriented testimonials

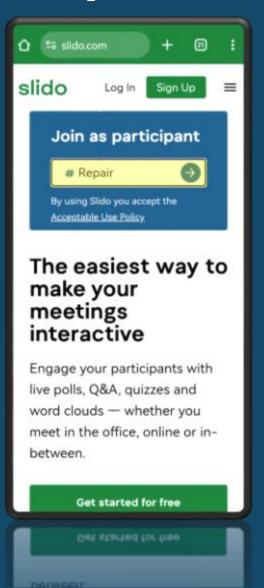
Save your questions for last!

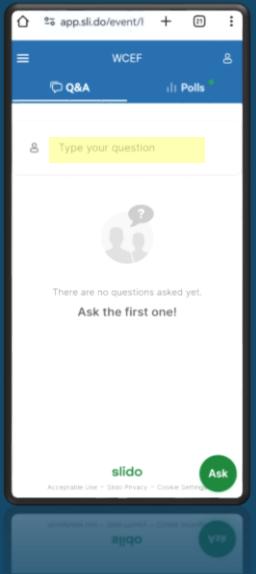


GO TO SLIDO.COM / #repair

• We will launch questions at you during testimonials

 You can ask questions to speakers – for the back of the session





You can keep standing if ...

You repaired an item last year

(or had somebody do it for you)

You can keep standing if ...

You bought a refurbished item last year?

Setting the scene

The socio-economic effects of a strong repair economy

Cristina Ganapini Right to Repair Campaign



THE R2R EUROPE CAMPAIGN



We are

people

repairers

sustainability activists

community



Since 2019 we represent:

- environmental NGOs
- community repair groups
- social economy actors
- spare parts distributors
- self-repairers
- repair and refurbishing businesses
- any citizen who would like to advocate for their right to repair

STEERING GROUP OF





Swappie













WHY REPAIR?







Waste reduction



Material and emissions savings



Jobs and Strategic Autonomy in Europe

WHY RIGHT TO REPAIR?



Electronic products have a high environmental footprint

Keeping products in use reduces the need to make more

This is why we need the Right to Repair





















8 in 10 Europeans agree that manufacturers should be required to make it easier to repair digital services.

REPAIR ECONOMY & JOB CREATION



- Re-use and repair economy > more labour intensive than a linear economy cf. OECD
- Especially in countries that import a large share of their raw materials -> replace imports with domestic economic activity
- Hard to delocalize jobs
- Promoting access to repair creates jobs: e.g. Austria and Thüringen repair incentives



REPAIR & STRATEGIC AUTONOMY

 Critical Raw Materials are mostly sourced outside the EU. The EU will never be selfsufficient

- China is both the largest global and the EU supplier for the majority of the CRMs
- Low substitutability and low recycling rates for many CRMs



R2R IN EUROPE

What do we want?











EU LEGISLATIVE PROGRESS

A new battery regulation that will require manufacturers to:

- Equip future appliances with userreplaceable batteries,
- sell batteries for at least five years at reasonable prices

New smartphone requirements will extend:

- the duration of software support (5 years)
- the sale of spare parts for future devices (7 years)





EU LEGISLATIVE PROGRESS

New repair rules for a limited selection of appliances (mainly household appliances):

- Reasonable prices and more transparency on original spare parts
- Support the use of compatible parts
- Ban anti-repair practices enacted by manufacturers (loopholes?)
- Encourage Member States to introduce repair bonuses
- Improve the attractiveness of repair under the legal guarantee



WHAT DO WE STILL NEED TO SCALE REPAIR SOLUTIONS?



- A broad right to affordable repair at EU policy level: more products covered, implementation of reasonable spare part prices, repair bonuses
- Better implementation of the waste hierarchy: i.a. EPR fees, strategic partnerships
- Repair data to inform policy, manufacturers & consumers: Open Repair Alliance
- Investment in skills and trainings for the next generation of repairers
- Material use reduction targets and sufficiency measures

GO TO SLIDO.COM / #repair

What great policies & incentives exist in your country to promote repair and refurbishment?

Share them throughout the session via slido!

(you can send multiple answers)



Developing winning polices for

an R-economy

... put in practice



Karin Huber-Heim
Chair of Austrian Task Force CE



PUTTING REPAIR ON THE AUSTRIAN POLICY AGENDA



KARIN HUBER-HEIM
Chair of Austrian Task Force CE

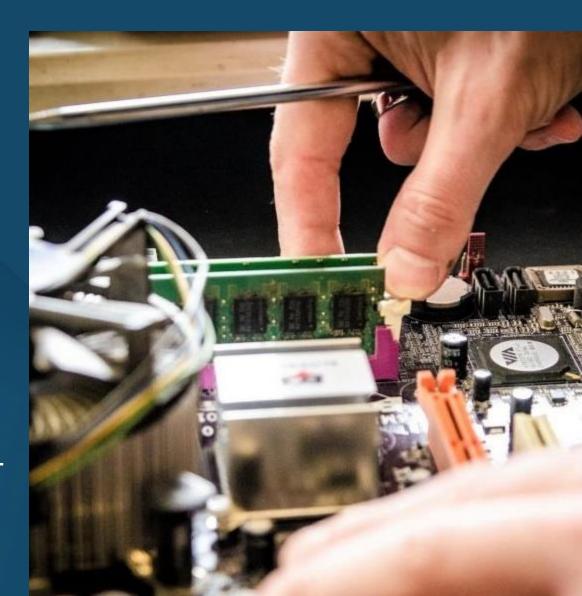
THE AUSTRIAN, REPAIR BONUS'

Federal Ministry
Republic of Austria
Climate Action, Environment,
Energy, Mobility,
Innovation and Technology

- ✓ started in April 2022
- ✓ Environmental Support Act 5c. Section "Circular economy",
 § 48k-48q
- ✓ electrical & electronic devices
- ✓ voucher for 50 % of the invoice amount, max. EUR 200 for repair and EUR 30 for cost estimates
- ✓ no limit per person

THE AUSTRIAN ,REPAIR BONUS'

- ✓ Funds source from the EU Recovery
 Fund "NextGeneration EU" as part of
 the Austrian Recovery and Resilience
 Plan
- ✓ €130 mio for 4 years €32.5 mio p/a
- ✓ Budget per capita €3,63 is 3 times higher than all other existing European schemes – France/National, Germany/-Federal



PROCESS OF APPLICATION

- ✓ Application for the voucher
- Presentation of the voucher at the business
- Settlement of the entire invoice at the business
- ✓ Submission of the invoice by the business to KPC
- ✓ Transfer of the credit to the account of the customer by KPC

Criteria for repair workshops:

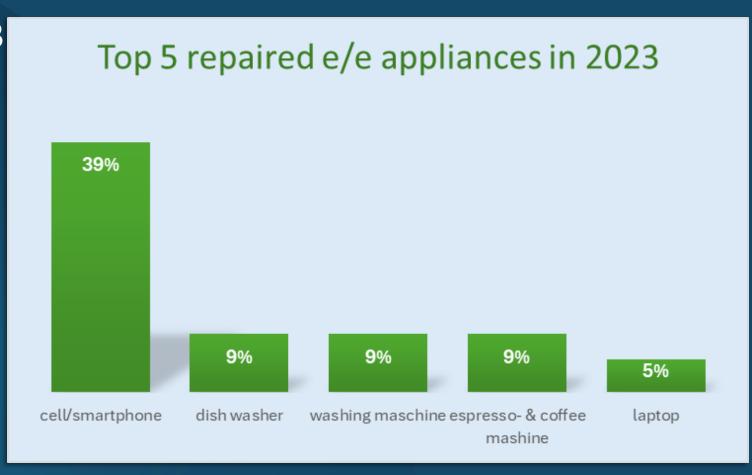
Branch in Austria and listed business license. Listing on the funding information website upon approval by KPC.



^{*}Managing entity KPC is an Austrian consulting firm and separate legal entity within the KOMMUNALKREDIT group.

DATA & FACTS

- 840,000 by the end of 2023
- Over 3,100 businesses currently participating
- The repair scheme so far has helped to avoid an estimated
 4000 t of e-waste since introduction



LEARNINGS

- The motto 'repair instead of throw away' has reached the public.
- The public's attention has been drawn to the many highly skilled, mostly small-scale repairers in the trade and craft sector.
- Procedure should be designed to minimize fraud cases. The
 reimbursement process had to be changed in 2023 to ensure
 transparency and integrity. The reimbursement no longer goes
 through the businesses but through the consumers' accounts.
- A general framework is essential. Short-term suspensions of the program and unplanned order declines can lead to significant difficulties.

WHAT WE CAN SEE

There is a growing awareness of citizens for the need to use resources carefully.

Repairing instead of throwing away is again becoming increasingly popular in Austria.

And while refurbished products are not fundable, they are becoming an increasingly important new category among consumers.

CONNECTING POLICY AND BUSINESS:

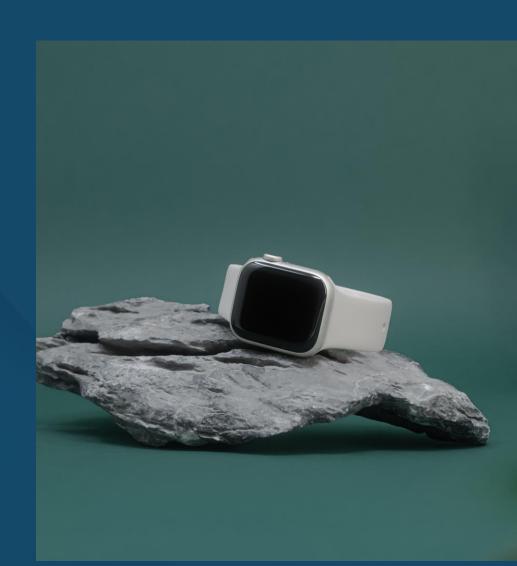
The potential of the refurbishment industry



KILIAN KAMINSKI

THE REFURBED KEY PILLARS

- Combination of affordability and sustainability – we draw consumers in, and they stay
- Network of suppliers product quality is very high
- Our products are the sustainable alternative to buying new



CHANGING THE
MINDSET – MAKING
REFURBISHMENT THE
NEW NORMAL



RETHINK NEW

THE REFURBED SUCCESS CRITERIA

• Our own definition of quality: Setting the standard

• Quantifiable data: products sold and impact generated

Making a difference: Rethink new

WHAT IT MEANS FOR THE CONSUMER

• If a product can't be repaired, **refurbishment is the best alternative** to buying new – and it strengthens the **circular economy**

• Consumers benefit from quality-controlled, affordable, trustworthy and

more sustainable products

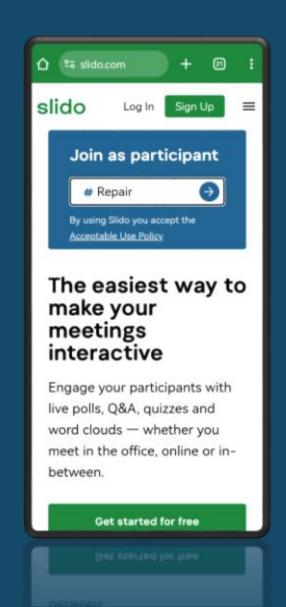
• Progress is visible on all levels – regulations, businesses and consumers

GO TO SLIDO.COM / #repair

What pieces of tech do you know help scale repair & refurb models?

Share them throughout the session via slido!

(you can send multiple answers)



Activating citizens in a repair economy via technology: Circufix

Yoko Dams VITO



Main barriers for repair (social or behavioral oriented)

- ✓ Lack of knowledge among consumers about repair services and their rights;
- ✓ Lack of trust in the quality and transparency of repair services;
- ✓ Length of time needed for repairs to be carried out;
- ✓ Low consumer expectations of the durability and reparability of products.



Source: EEA ETC report, 2022, "An overview of Europe's repair sector"

→ R2R: "making available repair services more transparent in terms of location, price and general conditions"

Europe's Right to Repair: Online platform

A matchmaking platform on repair would:

- ✓ inform consumers about the availability of repair providers;
- ✓ make key conditions of repair (e.g. average duration, price ranges) more transparent;
- ✓ cover the full range of consumer goods;
- √ facilitate consumer decision-making;
- ✓ improve protection.

Source: R2R impact assessment report, 2023

Europe's Right to Repair: Online platform

It is estimated to:

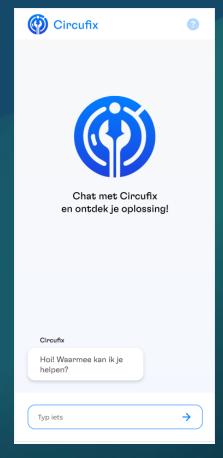
- ✓ increase the take-up of repair by 6.7%;
 - Independent repairers, producers and traders offering spare parts and repair services would have additional revenue, estimated as EUR 2.4 billion.
 - Expected consumer savings over 15 years are EUR 35.2 billion.
- ✓ savings of 2.5 million tons CO2-eq (5% increase);
- ✓ reduce the use of resources by 0.3 million tons (5% increase);
- \checkmark create waste savings of 0.5 million tons (5% increase).

Circufix – you repair assistant

A new service, combining:

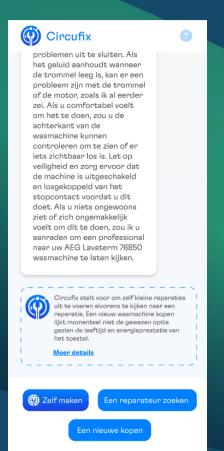
- ✓ AI —driven tool to support identification and diagnosis of a broken device
- ✓ Matchmaking platform



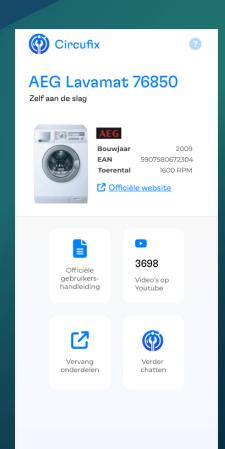


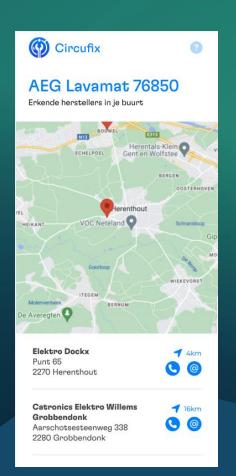


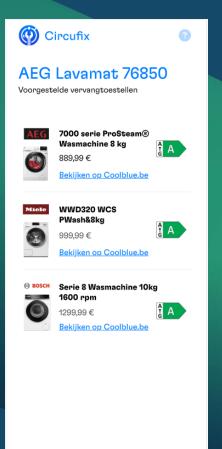




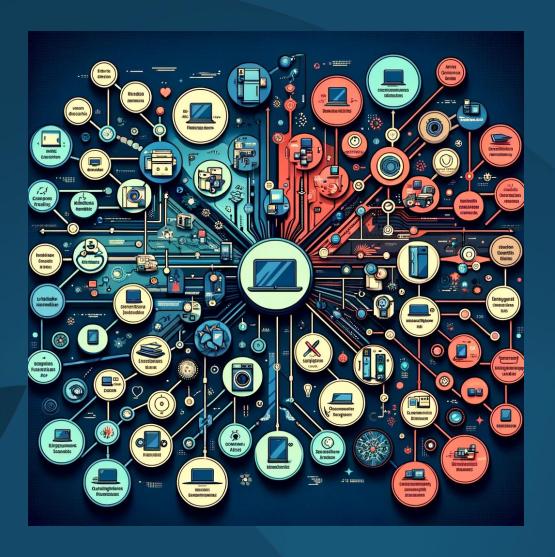




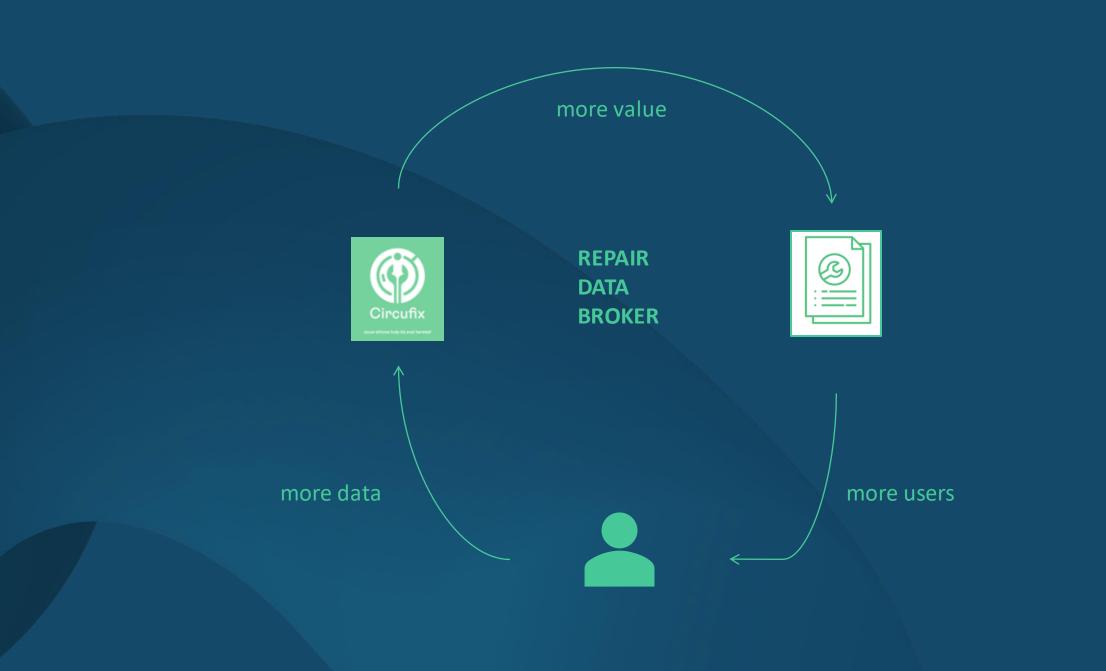




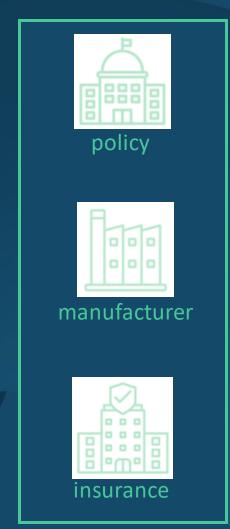
Underlying magic



- ✓ Sustainability assessment /
 Repair ecosystem / Open repair
 data platform
- ✓ AI / Repair knowledge graph
- ✓ Large language model



Business model: "Repair data broker"





→ Circufix.eu

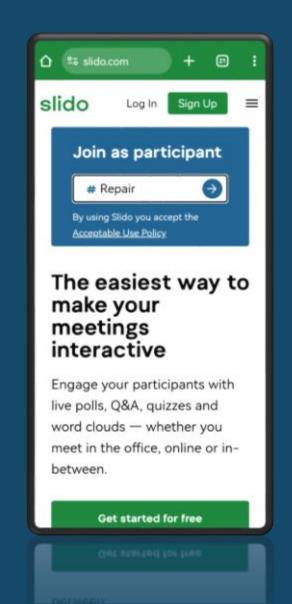


GO TO SLIDO.COM / #repair

What innovative partnerships in reuse, repair or refurbishment exist in your country?

Share them throughout the session via slido!

(you can send multiple answers)



Forging partnerships within a circular economy

Charlotte Vanhoutte Repair&Share

REPAIR & SHARE





Recycling centres in Flanders 17 million 41 million collected in Belgium in 2022

THAT'S MORE THAN 1 OUT OF 3 DEVICES

Other collection points 24 million













WE ARE REPAIR&SHARE

a non-profit environmental organisation. We coordinate and implement projects around **repair**, as a circular strategy for **prolonging the lifetime of products**. We work in broad partnerships to develop new solutions **across the whole value chain**.



WE TACKLE SHARED CHALLENGES

- → How can we get more repairers into the workforce?
- → How can we make repair affordable for consumers and profitable for repairers?
- → How can we better collect and divert discarded devices towards reuse?





'CAREFUL COLLECTION' FOR REUSE

A **new product flow** to prolong the lifetime of small domestic appliances collected at Flemish recycling centres

REPAIR & SHARE



REP∆IR SHARE &





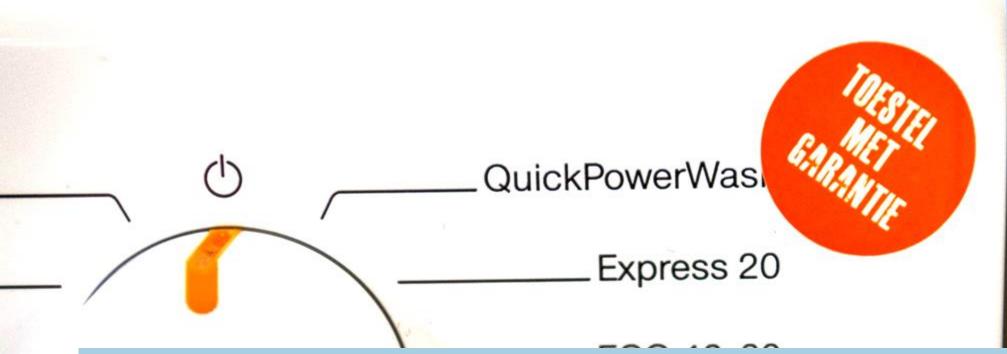












mises

THEY ARE SOLD WITH ≥ 1 YEAR WARRANTY

Impregneren - Imperméabilisation

Pompen/Centrifugeren Vidange/Essorage

Alleen Spoelen/Stijven Rinçage/Amidonnage REPAIR & SHARE

FORGING PARTNERSHIPS THROUGHOUT THE VALUE CHAIN



Consumer: growing awareness and 'careful discarding' of their device

EPR electrical appliances



Communication, investing in material, improving collection and logistics for reuse

Inter-municipal waste organisations











Communication to residents in area of operation, collection, first triage of qualitative devices, supporting visitors

Reuse centres













Transport and processing of devices, repair, second hand sale



Kickstart, support monitoring & scale-up; address structural bottlenecks







STARTED UP IN 2022 AND 2023













PILOTING IN 2024













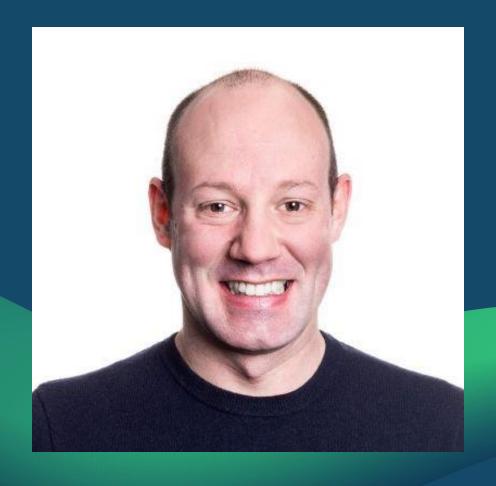




Removing all frictions to recirculate smartphones

The essential role of local value creation in scaling the circular economy for smartphones

Geoffroy Van Humbeeck aSmartWorld







Service

B2B

Smartphon e Fleet

Service

Impact

B2B

Smartphon e Fleet

SOCIAL

Reducing
Digital divide

Service

Impact Software

B2B

Smartphon e Fleet

SOCIAL

Reducing Digital divide

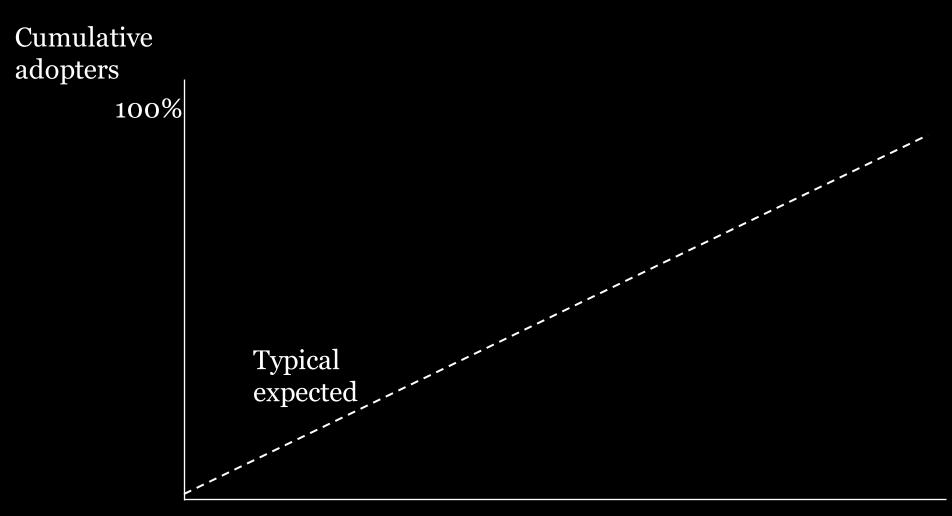


Success factors

- Key decisions
- Partnership
- Solving problems
- o Skills

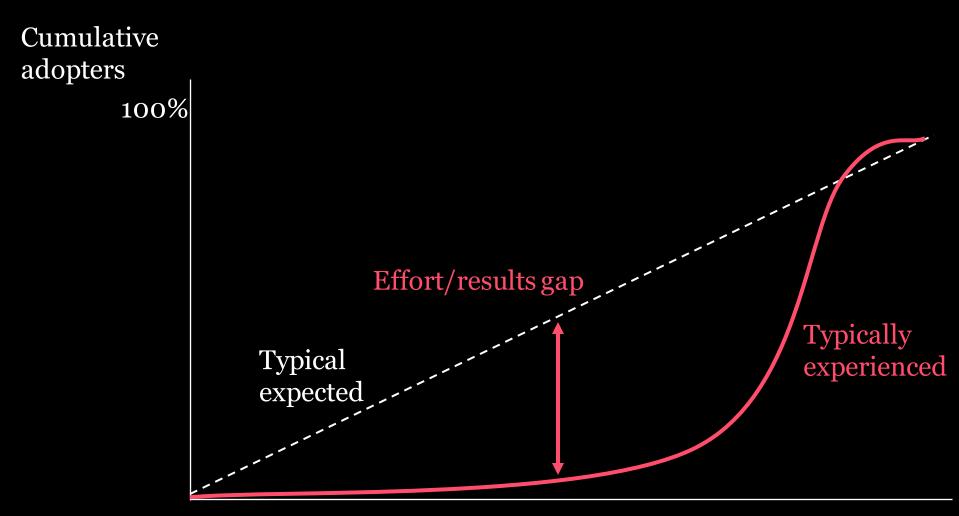
Enabler of change

Managing the process of change



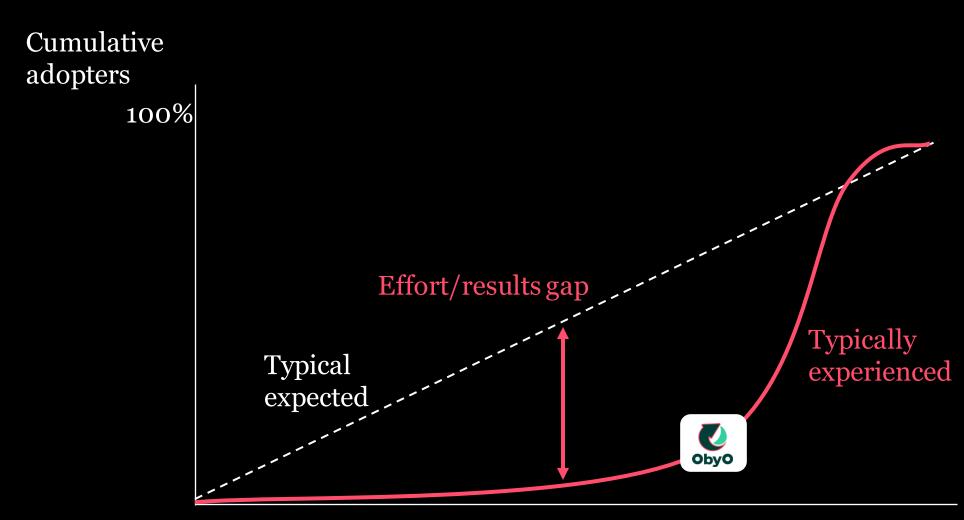
Time

Managing the process of change



Time

NEVER GIVE UP!



Time

Source: Battilana & Kimsey, 2017.

Join us in Tranforming an Ecological Challenge into massive Economic Opportunity

From R-strategies to winning business models

Evi Bultinck Atlas Copco



Customers in all industries













A very global presence





Atlas Copco Group targets

		KPIs	Targets
	Financial	Revenue growth measured over a business cycle A sustained high return on capital employed Earnings as dividends to shareholders	8% annually About 50%
Ġ.	People	Atlas Copco employees agree there is opportunity to learn and grow in the company. Atlas Copco employees believe we have a work culture of respect, fairness and openness. Atlas Copco employees agree that they feel a sense of belonging in the company. An improved gender balance, with an increase in female Atlas Copco employees.	Above global benchmark and continuous increase Above global benchmark and continuous increase Above global benchmark and continuous increase 30% by 2030
	Ethics	Atlas Copco employees confirm compliance with the Group Code of Conduct. Atlas Copco employees participate in the Group's ethics training. New Atlas Copco employees participate in the Group's ethics training within 12 months of joining. Significant suppliers confirm compliance with the Group Code of Conduct. Significant distributors confirm compliance with the Group Code of Conduct.	100% annually 100% every other year, starting 2022 100% annually 100% annually 100% annually
-	Products and service	Projects for new or redesigned products have clear and specific targets set for reduced carbon impact . Development of a Group-common approach to measuring product circularity .	100% By 2024
	Safety and well-being	Atlas Copco employees agree that the company takes a genuine interest in their well-being. A balanced safety pyramid.	Continuous increase, measured in employee survey. More reports of risk observations than near misses, more reports of near misses than minor injuries and more or equal reports of minor injuries relative to recordable injuries.
	The Environment	To keep the global temperature increase well below 2°, reduced CO ₂ e* emissions (tonnes) from scope 3 . To keep the global temperature increase to maximum 1.5°, reduced CO ₂ e* emissions (tonnes) from scopes 1 & 2 . Reduced water consumption in relation to cost of sales. Significant direct suppliers have an approved Environmental Management System. Reused, recycled or recovered waste from internal operations.	-28% by 2030, compared to our 2019 baseline -46% by 2030, compared to our 2019 baseline Continuous year-on-year reduction Continuous increase 100% by 2030



Redesign

R-strategies in Atlas Copco

N-Strategies III Atlas Copco			Atlas Copco solution
Use less		Use fewer resources per product and/or function	
Narrow	R0 Refuse	Make product redundant by abandoning its function or by offering the same function with a radically different product	Packaging Component integration
	R1 Rethink	Make product use more intensive (e.g. by sharing the product)	Rental Airplan(+): as-a-service
	R2 Reduce	Increase efficiency in product manufacture or use by consuming fewer natural resources and materials	Product weight & waste reduction Better materials (recycled, recyclable,)
Use longer Slowdown of resource consumption		Slowdown of resource consumption	
Slow	R3 Re-use	Re-use by another consumer of discarded product which is still in good condition and fulfills its original function	Packaging
	R4 Repair	Repair & maintenance of defective product so it can be used with its original function	Service offering Smartlink: preventive maintenance
	R5 Refurbish	Restore an old product and bring it up to date	OriginAir: machines
	R6 Remanufacture	Use parts of discarded product in a new product with the same function	OriginAir: components
	R7 Repurpose	Use discarded product or its parts in a new product with a different function	
Use again		Recycle to close the loops	
se	R8 Recycle	Process materials to obtain the same or lower quality	Production waste
Close	R9 Recover	Incineration of material with energy recovery	Production waste



Redesign

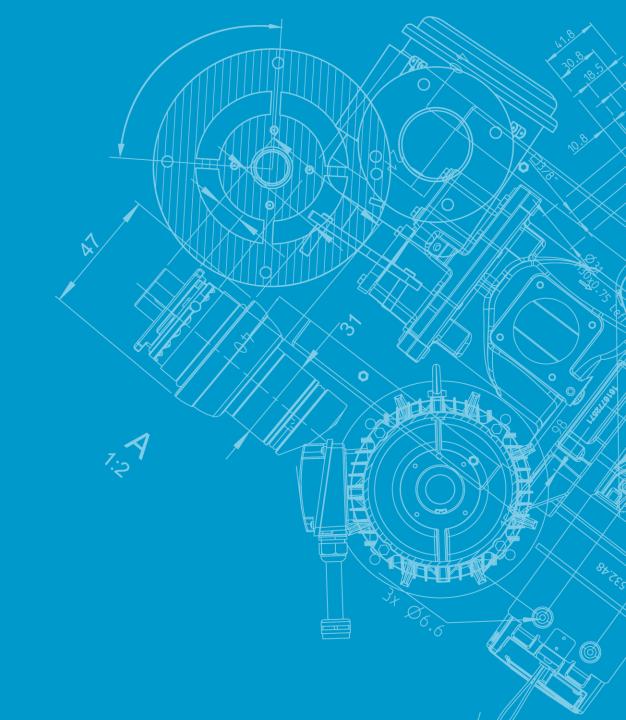
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REDESIGN

Tools for circular design



Boosting circularity starts in the design phase



Projects for new or redesigned products have clear and specific targets set for reduced carbon impact.

Development of a Group-common approach to measuring product circularity.

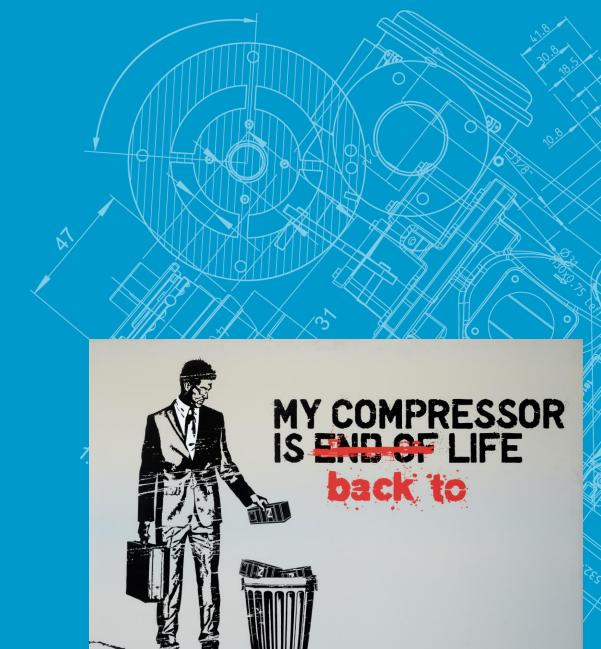
100% By 2024

- AC scope on circularity
 - Integrate design-for-circularity into our product developments
 - Measure product circularity → determine KPI's → improve product circularity
 - Calculate CO₂ footprint of CE strategies
 - Report on circularity and CO₂ footprint
- Design-for-circularity monitoring framework: partnership VITO
 - CE design manual (how to design-for-R)
 - CE measuring tool (see session on CE indicators)
 - CE checklist (R strategies that cannot be calculated)



REMANUFACTURE - REFURBISH





OriginAir Operational Flow











BUY BACK

Offer trade in value
Starting point for quality
Handled in house by
Sales team
Check in test (incl.
functional test)

TECHNICAL RECONDITIOING

Full refurbishment of machine as standard
Refurbished or new elements
Trained CTS workforce
VSD & Motor Upgrades
Coolers tested

REFINISHING & PAINTING

Bodywork inspected and refurbished, **repainted** or replaced
Castings, housings cleaned and **recoated**Refoaming where needed

TESTING

hours

Vibration test using CTS sensor (incl. report)

Motor test certificate

High res. P log & Elektronikon log

Thermal imaging coolers

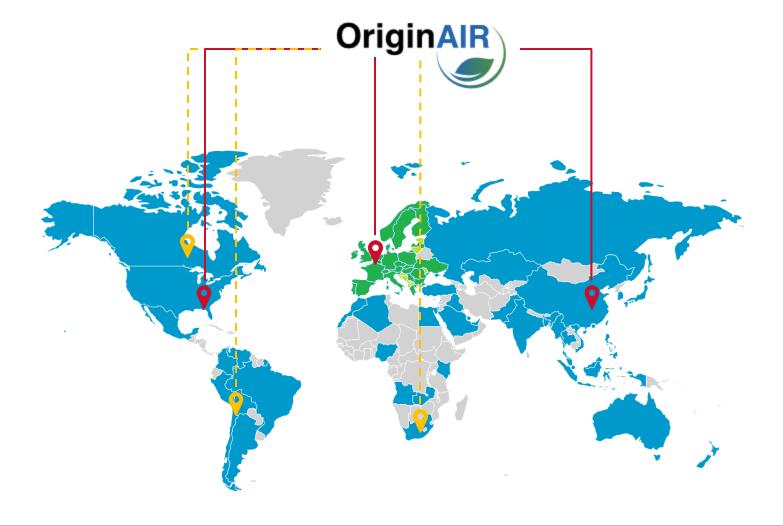
Functional test several

TRANSPORT

Dedicated logistical point of contact
Organised in house
Machines packed on pallet in protective cover
Packaging on demand



The global nr 1 Brand in the refurbished compressor marketplace





RETHINK (selling solutions not products)

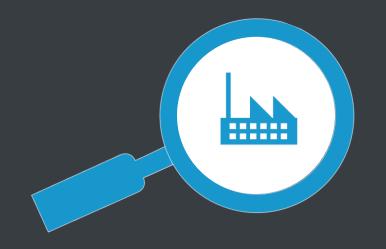
Rental & Airplan





Customers want to focus on their core business















FLUCTUATING PRODUCTION



Overcoming boundaries



INVESTMENTS



EFFICIENCY



SUSTAINABILITY



OPERATIONAL PROCESS



FLUCTUATING PRODUCTION

LOW **PERIODICAL** FEE

MOST EFFICIENT EQUIPMENT

ASSET MANAGEMENT & UP/DOWNGRADE

MACHINE & SERVICE AVAILABILITY GUARANTEE

PAY PER USAGE

RENTAL (typically short period)

AIRPlan (minimal 15-24 months)

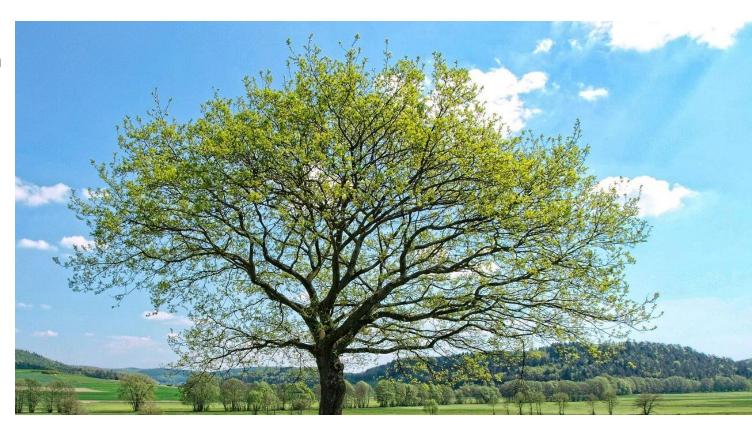
Successes and Challenges

Redesign			
Circular design tools	Circular design		
• Started	Harvest, create value		
Rethink			
– Rental –	Airplan		
 Very extended 	• Selling solutions (Airplan) i.s.o. products is challenging for sales force, investors, customers		
 Also distributors 	 Not really beneficial for CE compared to Rental (real "sharing" of compressor not possible) 		
Repair			
– Service –	Possible reparability requirements		
 Very extended: different contracts 	 Legal framework to avoid compromising business confidentiality 		
 Connected for pro-active maintenance 	 Legal framework to allow for repair by business itself 		
Refurbish & Remanufacture	Refurbish & Remanufacture		
– OriginAir –	OriginAir		
 Started-up & profitable 	 Scale-up: business case challenging for low-volumes & high-skilled activities 		
	Legal framework for transporting "waste" across EU borders		



Conclusions

- Atlas Copco taking steps to become circular
 - Integrate circular design in our product design processes & increase circularity of our products and company
 - Very extensive repair offering
 - Extending the offer to circular solutions
 - Rental: renting
 - Airplan: air-as-a-service
 - OriginAir: refurbished/remanufactured
- Scale-up, valorization, legal frameworks might be challenging
- ➤ Atlas Copco wants to be part of the solution





Let's tackle some of those burning questions