

THE PROTAGONISM OF PLASTIC IN THE CIRCULAR ECONOMY

Strategy for innovation

Marcos Iorio

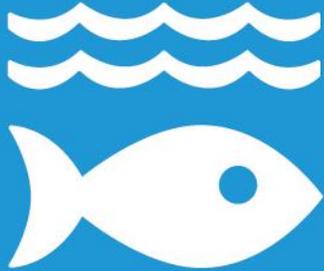
Eco-Circular Projetos Regenerativos

2021

“Humans think in the form of narratives and not facts, numbers or equations, and the simpler the narrative, the better.

Yuval Noah Harari – 21 Lessons for the 21st Century

14 VIDA NA ÁGUA



1 ERRADICAÇÃO DA POBREZA



2 FOME ZERO E AGRICULTURA SUSTENTÁVEL



5 IGUALDADE DE GÊNERO



6 ÁGUA POTÁVEL E SANEAMENTO



7 ENERGIA LIMPA E ACESSÍVEL



8 TRABALHO DECENTE E CRESCIMENTO ECONÔMICO



9 INDÚSTRIA, INOVAÇÃO E INFRAESTRUTURA



10 REDUÇÃO DAS DESIGUALDADES



11 CIDADES E COMUNIDADES SUSTENTÁVEIS



12 CONSUMO E PRODUÇÃO RESPONSÁVEIS



13 AÇÃO CONTRA A MUDANÇA GLOBAL DO CLIMA



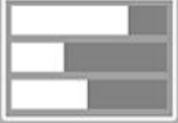
13 AÇÃO CONTRA A MUDANÇA GLOBAL DO CLIMA



17 PARCERIAS E MEIOS DE IMPLEMENTAÇÃO

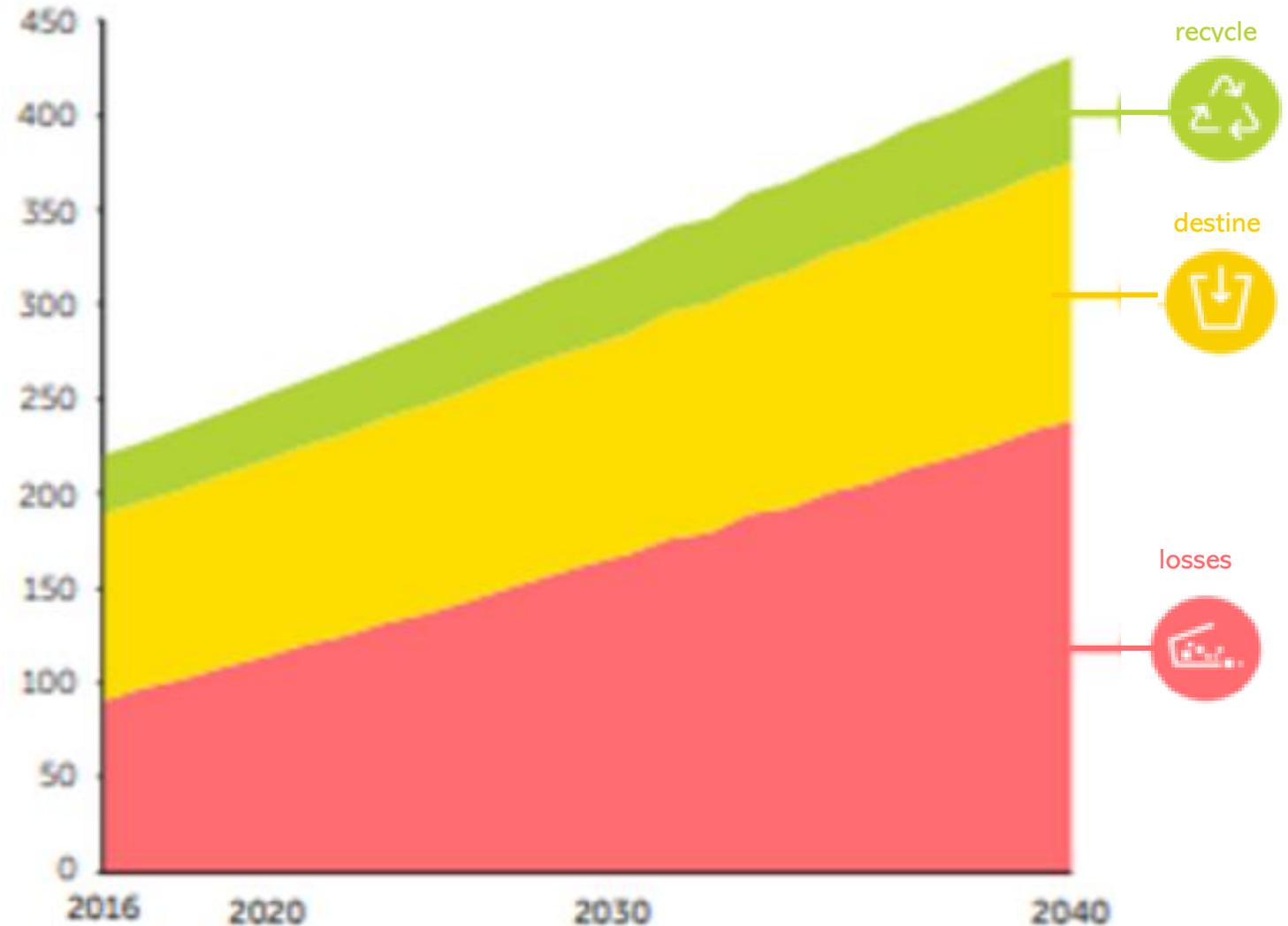


QUADRO GERAL DOS INDICADORES



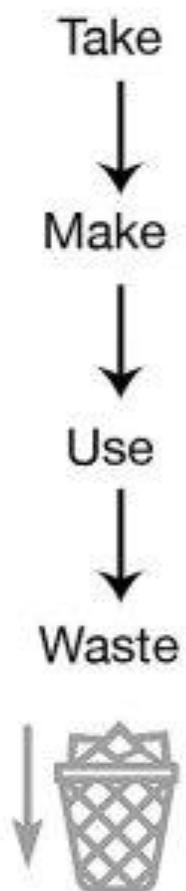
IS ONLY RECYCLING A STRATEGY MISTAKE?

Millions of Tons per year

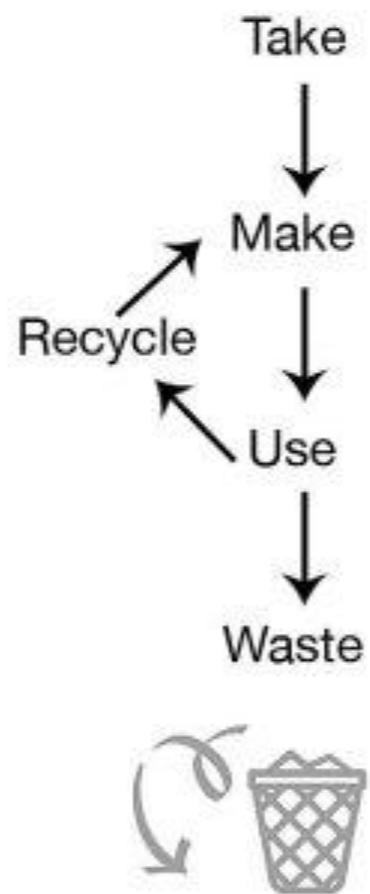


Fonte: Breaking the plastic Wave – Fundação Ellen MacArthur 2016

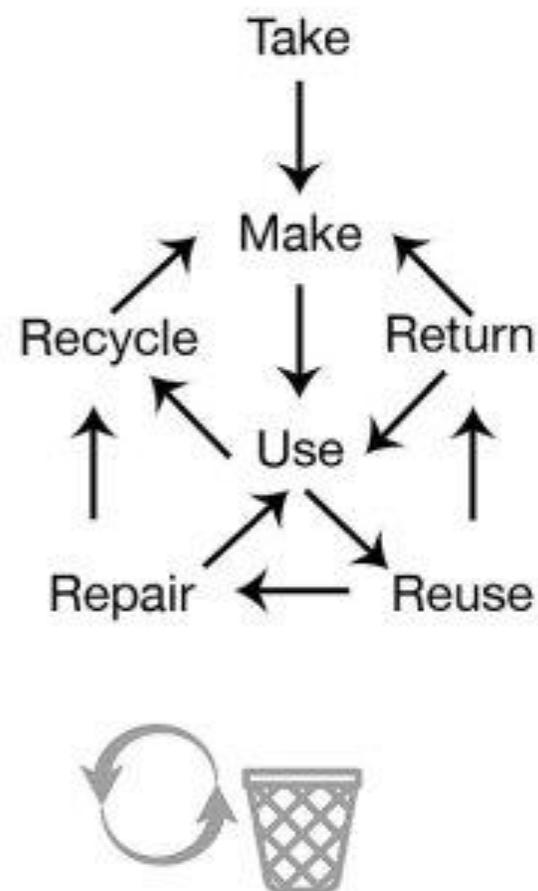
LINEAR ECONOMY



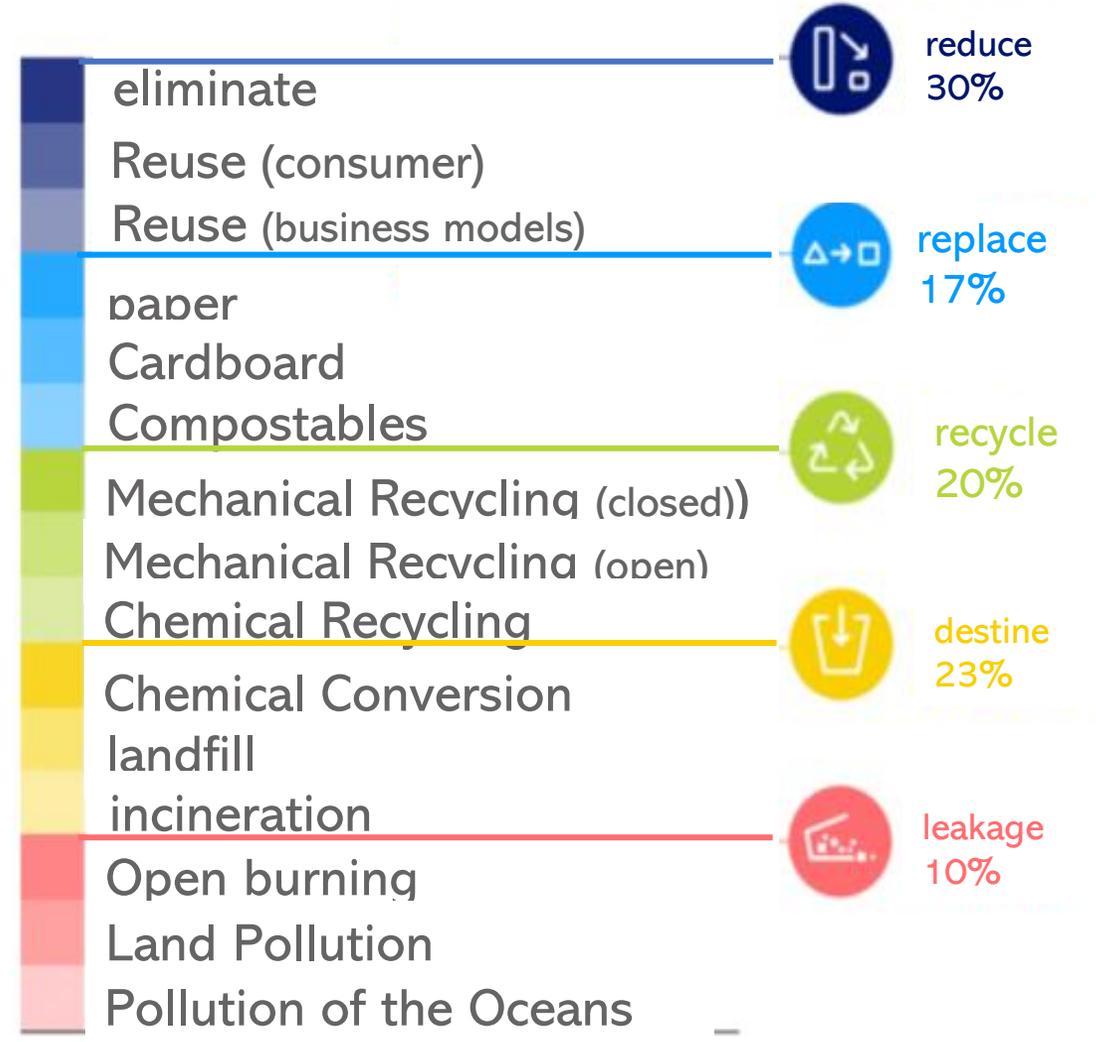
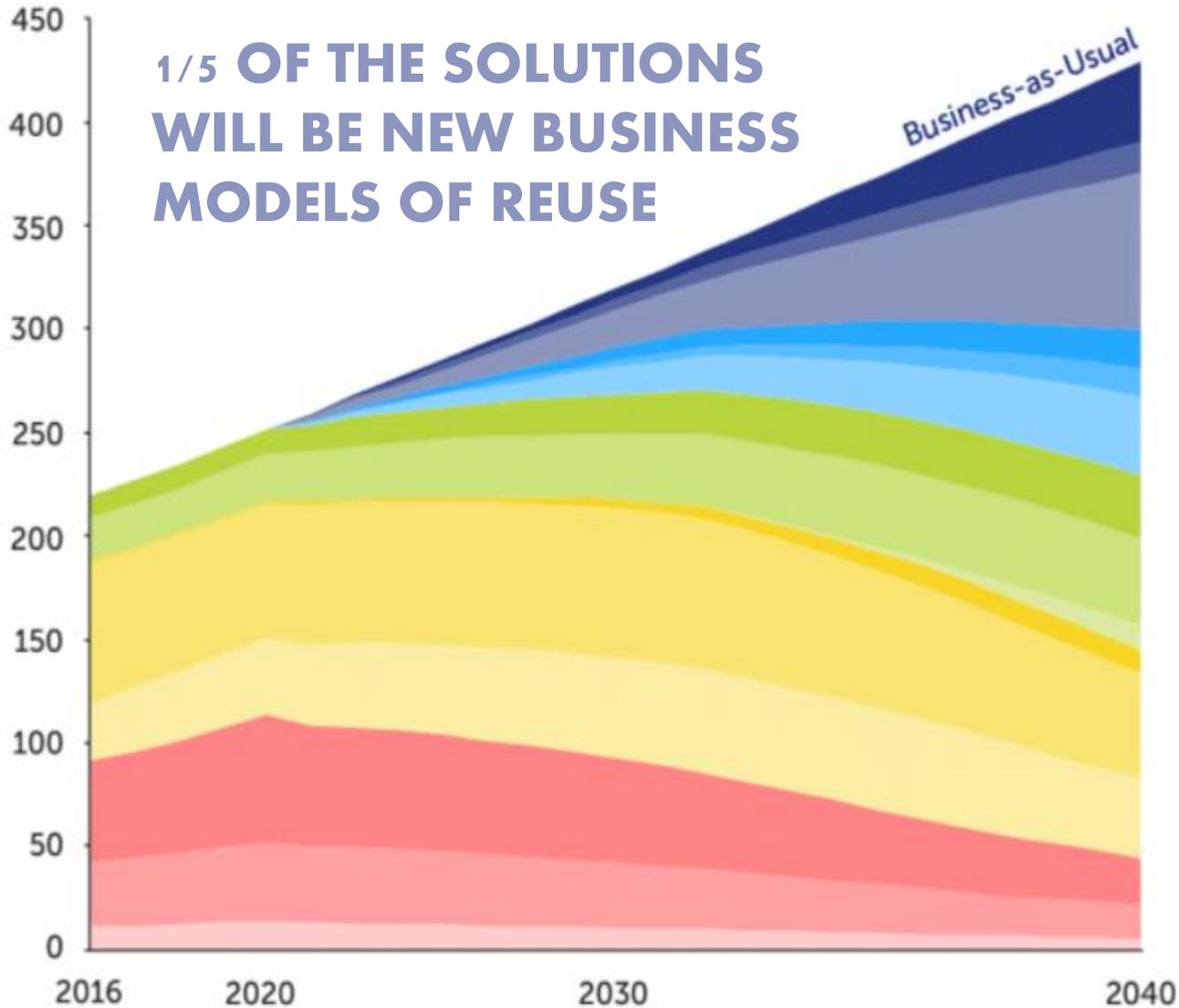
RECYCLING ECONOMY



CIRCULAR ECONOMY



Millions of Tons per year



Two types of innovation are needed to realize a **CIRCULAR ECONOMY**

Inovação na origem

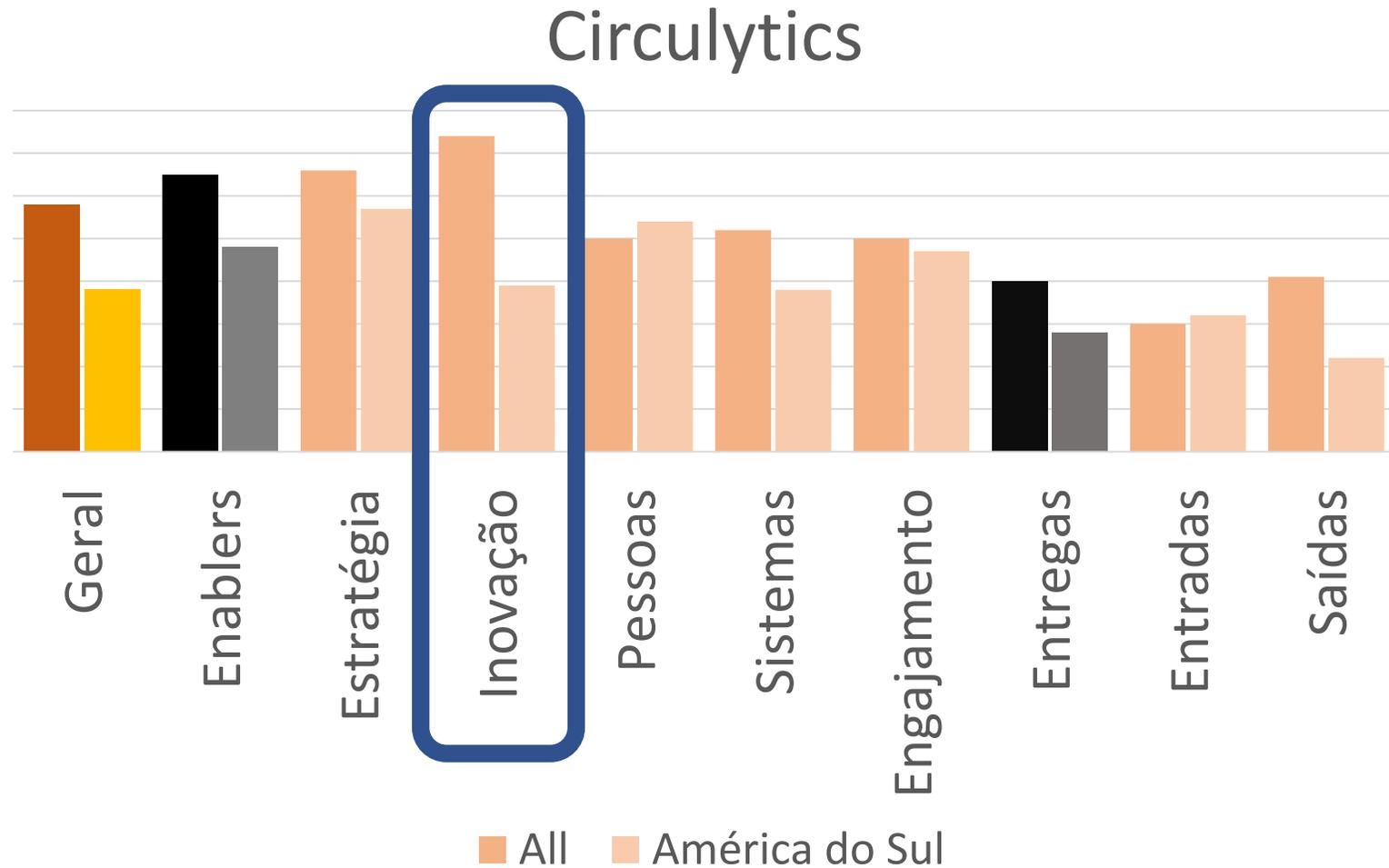
Repensa produtos e serviços na fase de projeto. Isso pode incluir, por exemplo, o desenvolvimento de novos materiais, design de produtos ou modelos de negócios.

Inovação no fim da cadeia

Afeta um produto ou material após seu uso inicial. Isso pode incluir, por exemplo, o desenvolvimento de novas tecnologias de coleta, classificação e reciclagem.

70% of the interviewees stated that the segment in which they work is suffering some kind of disruption.

Only 10% work with some kind of disruptive innovation that can kill or replace their own business.



"ESG will
redesign the
business
ecosystem."

**Guilherme Benchimol – XP
Investimentos**

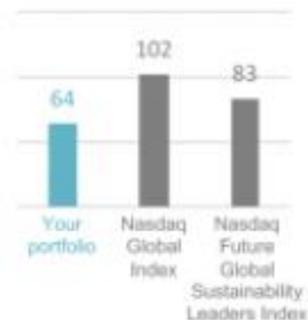
**In 2018 he
warned, in 2019
warned again.
In 2020, he
resigned.**

**Larry Fink –BlackRock
CEO and administrator of
USD 7 Trillions**

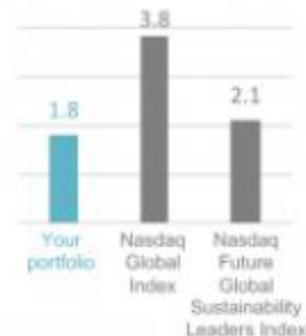
My ESG footprint

My portfolio's environmental impact

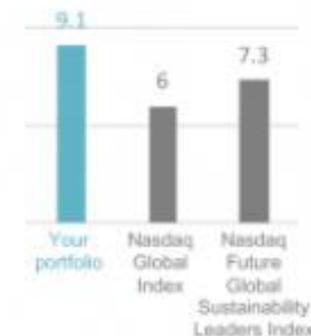
 Carbon emissions
Tonnes CO2 per m€



 Waste generation
Tonnes waste per m€



 Renewable power production
MWh per m€



My portfolio's impact on social & governance metrics

 Gender equality

21%

Female executives

46%

Female employees

0.9

Female pay ratio

Companies in my portfolio flagged for controversial topics



Defense & weapons
Northrop Grumman Corp



Fossil fuels
Duke Energy Corp



Tobacco
Scandinavian Tobacco

Waste Management Inc

Sustainable alternatives are
Innogy SE

Companies in my portfolio flagged for beneficial topics



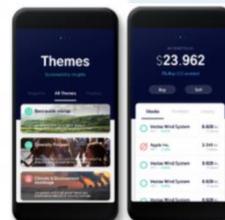
Renewable energy prod.
Nextera Energy Inc



Diversity & Inclusion
Unilever NV



Human & labor rights
Adidas AG



N

What's your
score?

a era dos dados

HEADLINE INDICATORS

These metrics are focused on providing you with a verdict: how well are you performing? A limited amount of indicators are used.

Circularity Gap Metric

Cradle to Cradle Certified

PERFORMANCE INDICATORS

These metrics are focused on assessing the physical processes underlying your circular performance. Indicators should include all stages of the value chain, such as share of secondary materials used and recycling rates.

CIRCLE ECONOMY

Circular Transition Indicator
KPMG

C2C PII

PROCESS INDICATORS

These metrics are focused on monitoring the transition process at your organisation. By definition, many different indicators are needed to highlight different aspects of change processes.

Circle Assessment

Circulytics

CIRCelligence

GRI 306: Waste Standard

CIRCLE ECONOMY

EMF

BCG

GRI

Circularity measurement tools are coming

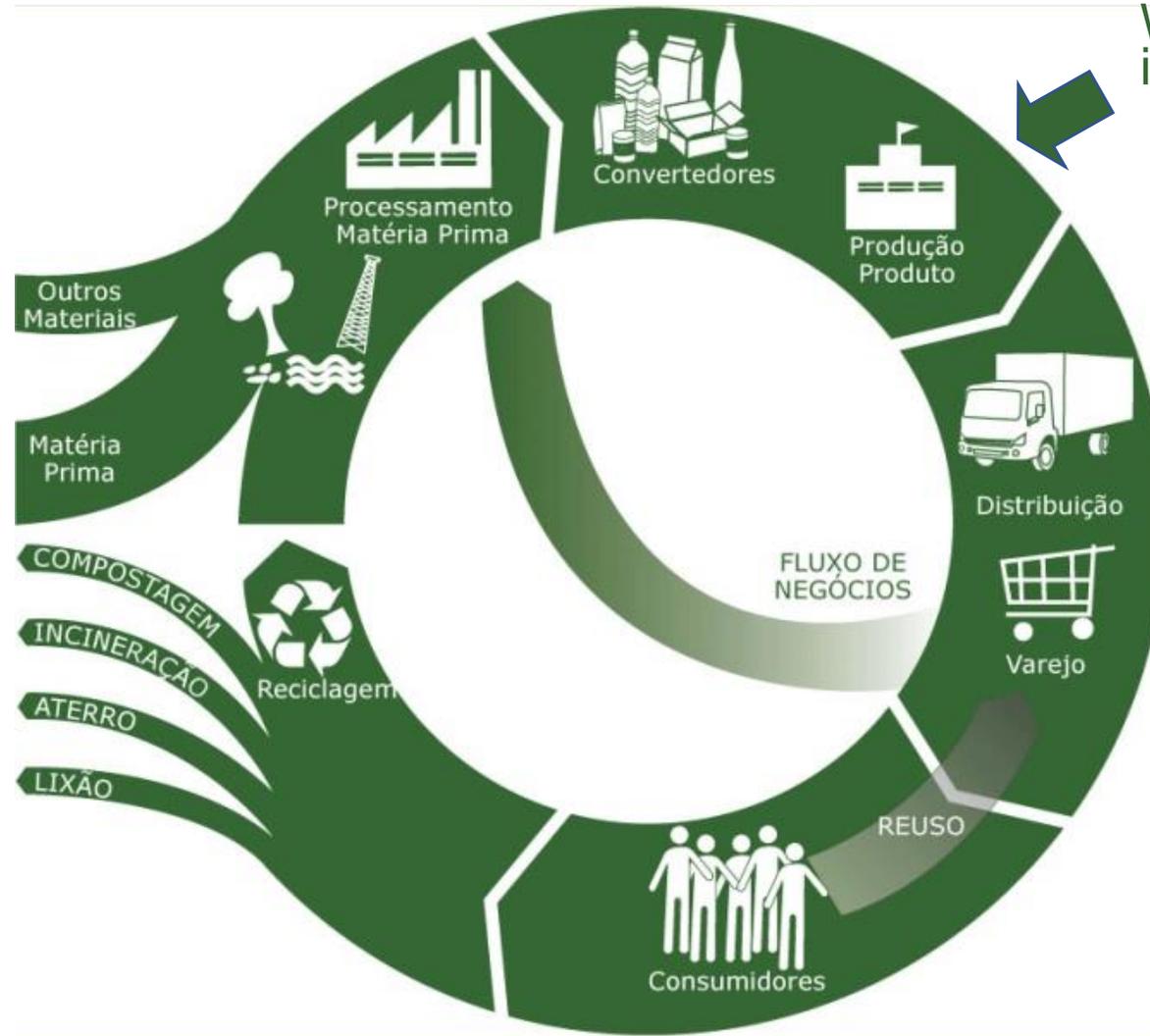
CREATE AWARENESS AND SET A BASELINE

IDENTIFY AND TRACK OPPORTUNITIES

ASSESS & COMPARE POTENTIAL AND BUILD BUSINESS CASES

VALIDATE AND SHARE YOUR RESULTS

INNOVATION IN ORIGIN



Where 80% of the impact is defined

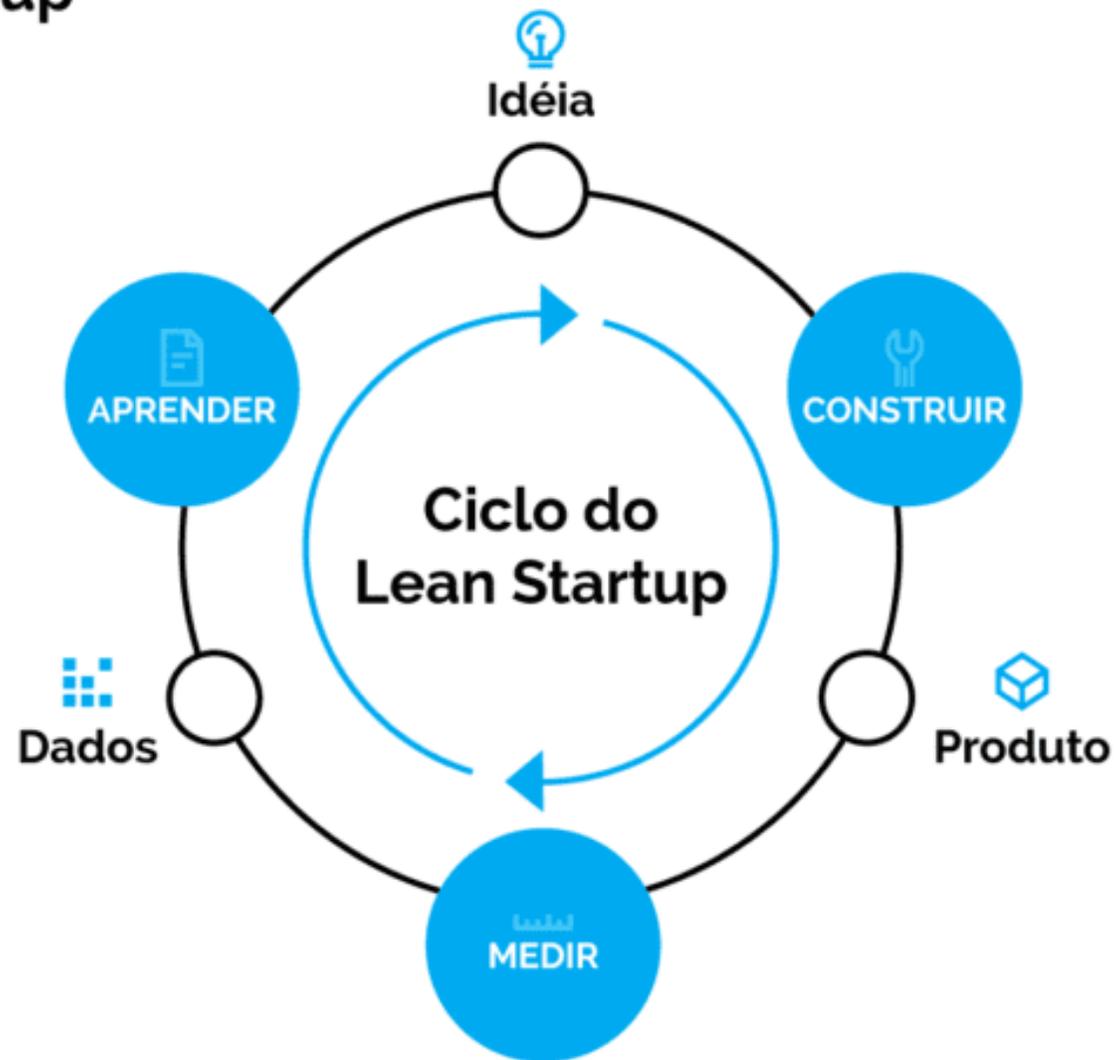
The Circulation of Materials: Starts at source

When packaging (reusable or single-use) can no longer fulfill its function, the material must be forwarded for recycling or composting.



TRESemmé: Pigmento desenvolvido para possibilitar a leitura ótica na reciclagem

Ciclo do Lean Startup



Coca-Cola

1969

Coca Invents the ACV prototype (REPA) to answer:

- Which bottle impacts the most, glass or **PLASTIC**?
- Bottle with own or outsourced production?
- Better **RECYCLE** or **ONE-WAY**?

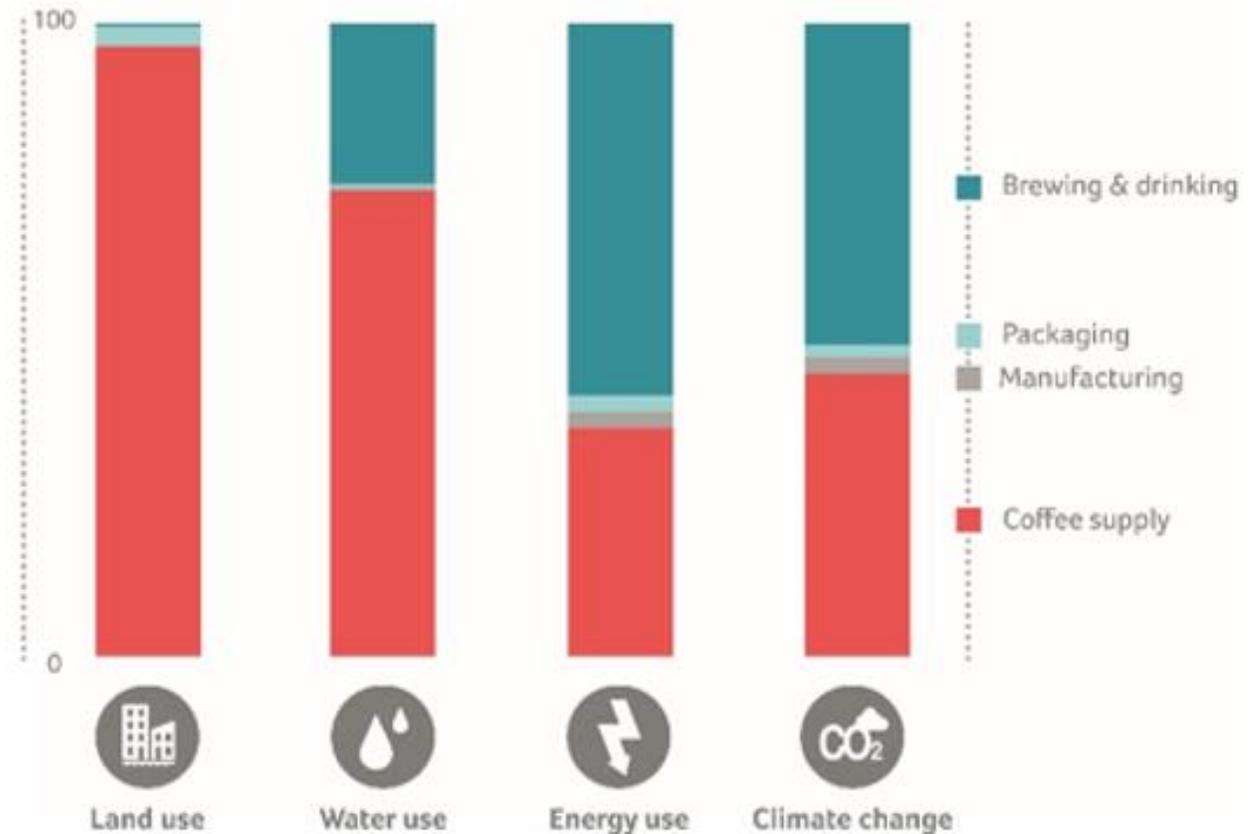
1978

- **Coca launches PET bottle**

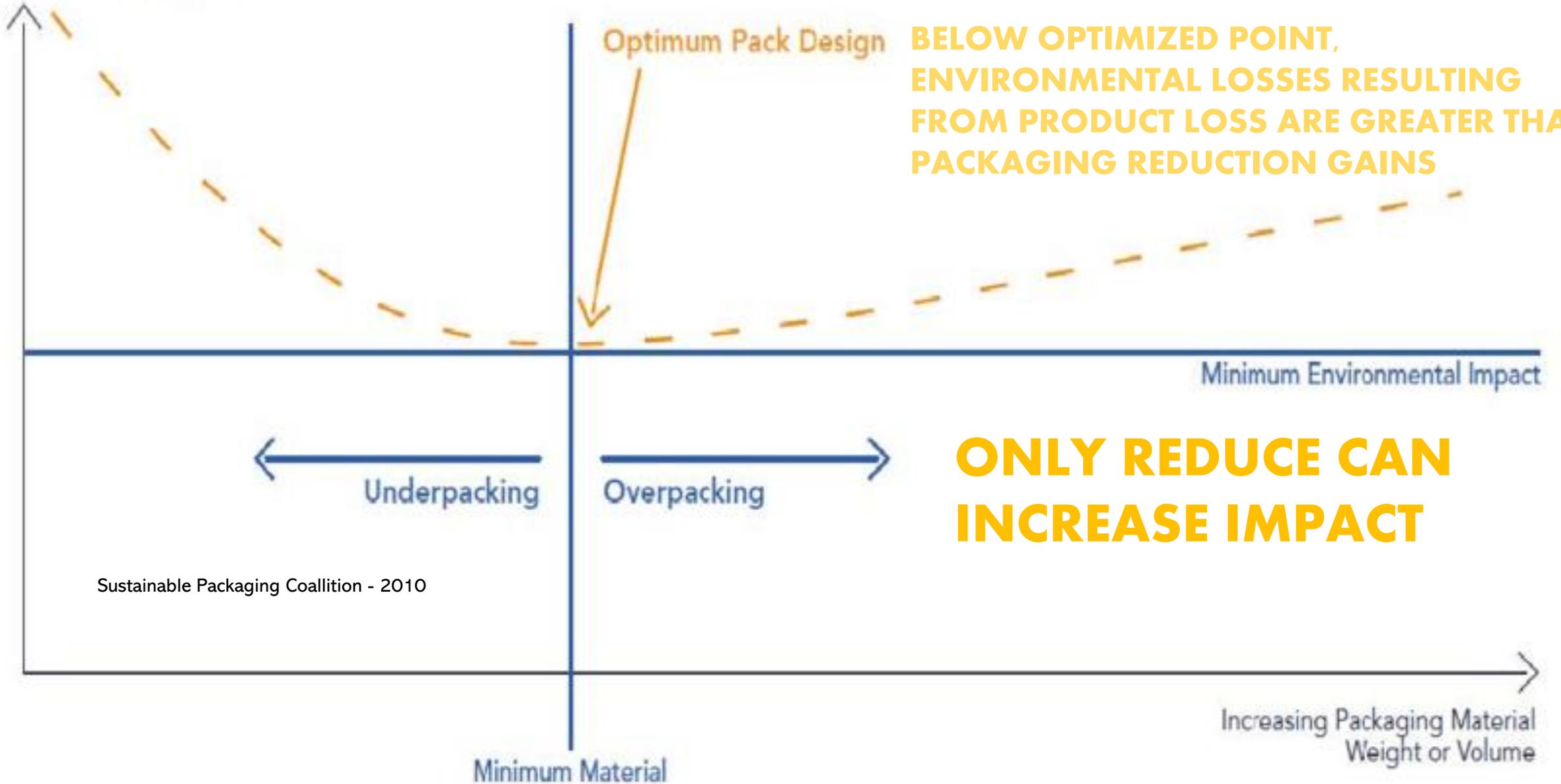




-  Mudanças climáticas
-  Depleção de ozônio
-  Inorgânicos inaláveis
-  Oxidação fotoquímica
-  Acidificação
-  Uso de água
-  Uso da terra
-  Esgotamento de recursos minerais
-  Eutrofização de água doce
-  Esgotamento de recursos fósseis
-  Toxicidade Humana – ar, água, solo
-  Ecotoxicidade
-  Eutrofização de água marinha



Negative
Environmental Impact



Sustainable Packaging Coalition - 2010



AÇO



VIDRO REUTILIZÁVEIS



BAMBU



PLÁSTICO



PAPEL DESCARTÁVEIS



JUTA

	AÇO	VIDRO	BAMBU	PLÁSTICO	PAPEL	JUTA
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Material predominante

Aço inoxidável

Vidro borossilicato

Bambu

Polipropileno

Papel

Trigo

Material auxiliar

Escova + bolsa

Escova + bolsa

Escova + bolsa

Embalagem de PEBD

Embalagem de PEBD

Embalagem de papelão

Reuso (ciclos)

500x

100x

50x

N/A

N/A

N/A

Manutenção

Lavagem

Lavagem

Lavagem

N/A

N/A

N/A

Fim de vida

100% aterro

100% aterro

100% aterro

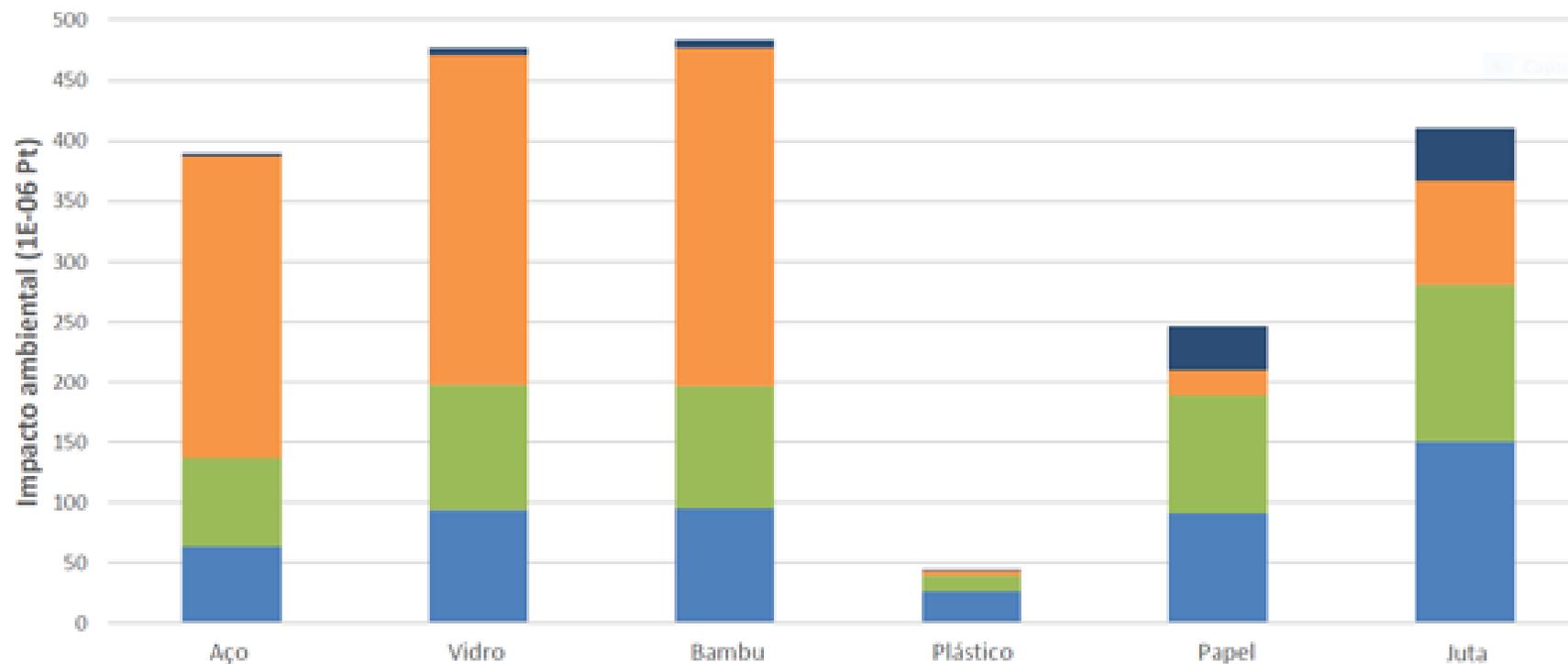
100% aterro
1% degradabilidade

100% aterro
32% degradabilidade

100% aterro
19% degradabilidade

RESULT OF THE VOTE

IMPACTOS - CATEGORIAS E ESCORES POR MATERIAL



**Have YOU
CHOSEN
YOURS?**

- Mudança climática
- Depleção de Ozônio (O₃)
- Inorgânicos respiratórios
- Depleção de Recursos, água
- Uso do solo
- Consumo de Recursos
- Formação Fotoquímica de O₃
- Acidificação
- Eutrofização

Realização



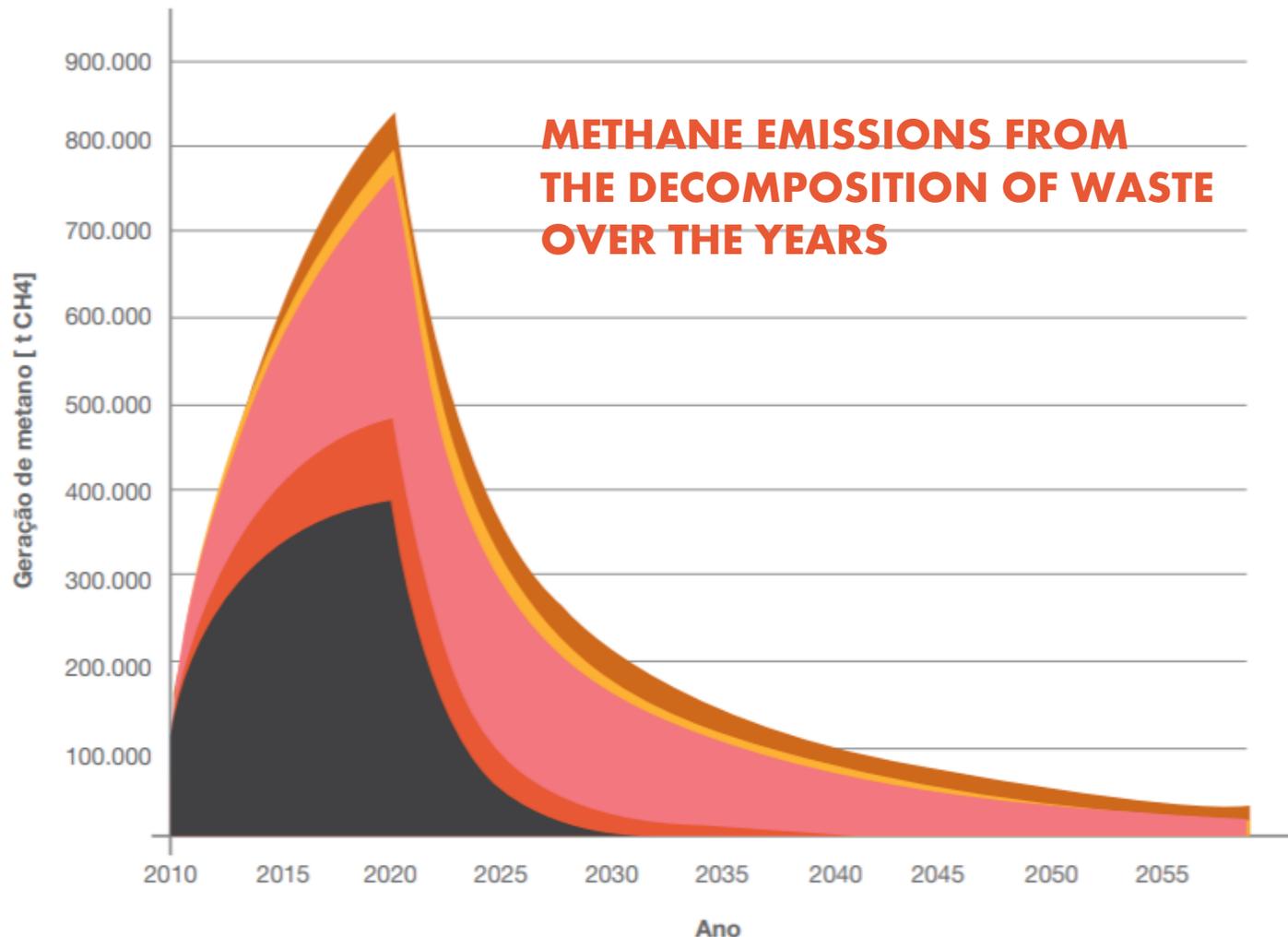
Home plastic screening methods Innovation is lacking AT THE END OF THE CHAIN



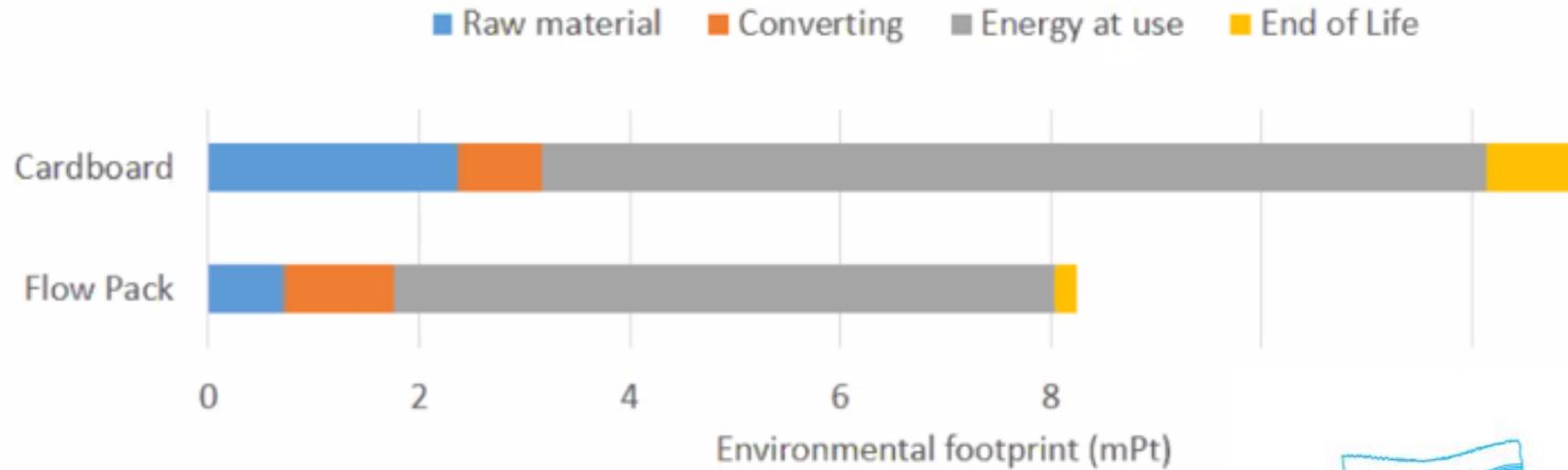
56%



15%



IF LANDFILL IS THE FINAL DESTINATION, THE IMPACT IS NOT FINAL



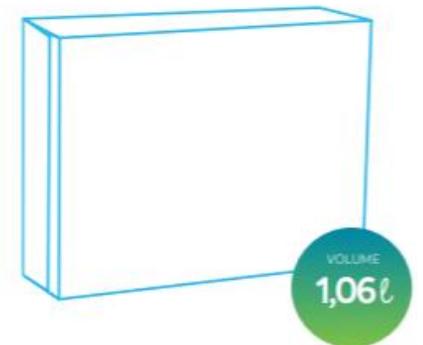
43% LESS MATERIAL

37% LOWER IMPACT

	PACK REVOLUTION	EMBALAGEM CARTONADA
MUDANÇAS CLIMÁTICAS	 x	 2,7x
INORGÂNICOS INALÁVEIS	 x	 5,3x
USO DE SOLO	 x	 3,5x



PACK REVOLUTION
MASSA UNITÁRIA
26g



EMBALAGEM CARTONADA
MASSA UNITÁRIA
56g

MEGA TRENDS IN ECO-DESIGN



CIRCULAR MANAGEMENT OF MATERIALS

- DESIGN FOR DISASSEMBLY
- REUSE MODELS
- LESS VIRGIN MATERIAL
- RESIDUE IS FOOD, CONNECT
- RECYCLED WITH EXCELLENCE



TRADITIONAL MATERIALS AND NEW MATERIALS

- BIOPLASTICS
- BIODEGRADABLES
- COMPOSTABLES
- MONOMATERIALS



LESS IS MORE

- MINIMALISM
- SIMPLER DESIGN
- MATERIAL OPTIMIZATION

MACRO TRENDS IN ECODESIGN



THE NEW GENERATIONS FIGHTING FOR SUSTAINABILITY

- FOR A GREENER FUTURE
- EDUCATION FOR CONSCIENCE
- FROM WASTE TO NEW PRODUCTS



USERS AT THE CENTER OF THE ACTION

- MAINTENANCE/REUSE-ORIENTED PRODUCT/SERVICE
- USE-ORIENTED PACKAGING
- EXPERIENCE-ORIENTED PACKAGING



MEASURE: DATA IS GOLD

- OPERATIONAL EFFICIENCY METRICS
- CERTIFICATIONS HELP
- SUSTAINABILITY EFFICIENCY AND CIRCULARITY METRICS

11 companies and their commitments

	8 Brand Owners							2 Retailers		1 Pkg	
											
100% Recyclable etc.	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Increase PCR Use	✓	✓	✓	✓	✓	✓	✓			✓	✓
Inc. Recycle Rates	✓	✓	✓		✓				✓		✓
Downgauge/Lightwt		✓	✓	✓			✓	✓		✓	
Bio-source/based etc.			✓			✓	✓	✓			✓
Bio-degradable		✓				✓					
Most Notable Claim	100% Collection	Biodegrad. Research	PCR & 2nd life for pkg	Recyclable sachet team	Recyclable label/ink/ad	Ocean Plastic PCR	Rechargeable, Refillable	Optimize & Bio-source	1 Polymer group pkg.	Private label =100% Rec	1 st Pkg Company

Most companies are focusing on:

- 1) Increasing recyclability of their packaging
- 2) Incorporating more PCR / recycled content in packaging

strategies



users replenish your packing at home (e.g.com refills delivered through a signature service)



the packaging is Collected at home by a service (e.g. on delivery return)

users replenish their Reusable packaging Away from home (e.g., in a store distribution system)

users return to packing in a store or delivery point (e.g., in a return machine or post office)



RETHINKING BUSINESS MODELS / READY TO SCALE / CHINA / E-COMMERCE TRANSPORTATION

ZerO Box from Huidu: Reusable e-commerce boxes

commercial:

2x higher Production Cost

Rental Price: 30% + economical than
disposable conventional boxes

STATUS: 2 MM of circulating boxes,

20 Operation Centers.



JD.com: If 10% of your orders were with Zero Box, savings of USD 4.5 MM/year

Today, 2,400 packages/second are delivered via e-commerce worldwide.

RETHINKING PACKAGING AND BUSINESS MODELS / SCALE / LATIN AMERICA / BEVERAGES

Universal Bottle from The Coca Cola Company: a design shared by various brands

impact:

GHG 47% less x PET single use

45% lower water use.

STATUS: 27% of sales are already in this format (2020)

INVESTMENT: Over USD 500 MM



RETHINK PACKAGING AND BUSINESS MODELS / READY TO SCALE / EUROPE-USA / DRY AND FRESH FOOD,
PERSONAL CARE, HOME CARE, BEVERAGES

LOOP: Well-known brands in premium packaging

BRAND REPUTATION: :

75-100% are more likely to buy
products from brands

IMPACTO: 22 a 45% better
environmental performance
through LCA

FIDELIDADE: Above-market

reputation rate, **97%** returned
packaging



RETHINKING BUSINESS MODELS / STARTUP / USA, UK / FOOD AND BEVERAGE FOR TRAVEL

CupClub: returnable packaging service for retailers

Status:

45 thousand requests in 2018, 305

thousand in 2019

Parcerias com Starbucks, McDonald's Coca-Cola, Yum! Brands, Nestlé, Wendy's, Baxter Storey, John Lewis & Partners e Compass Group
Impact: Independent LCA showed 50% GHG reduction compared to paper cups, even assuming a 10% loss of cups



RETHINKING PACKAGING / IN IMPLEMENTATION / EUROPE, ASIA / BEVERAGES

Sprite bottle: from green to transparent



Status:
Increase in
recycling value in

35%

Allows the
incorporation of
PET-R

MAGGI, Nestlé (Germany):
pigmentation removal to
improve circularity value



Some care with LCA

- **Use LCA to highlight areas of improvements in a solution (before x after)**
- **Use LCA to investigate the impact of changing external factors (energy matrix, territories, new recycling infrastructure)**
- **Use LCA to compare very similar solutions: the world is making new choices of habits**
- **Take extra care when using LCA at the BEGINNING of the INNOVATION process**
-

In summary:

in a VUCA world, plastic will continue to be an improved design tool.

in new business models where REUSE is the goal, plastic is the number 1 candidate for projects.

innovation does not stop. Those who wait will be hit by new business models, not materials.

GOOD PACKAGING PROTECTS PRODUCTS CIRCULAR PACKAGING PROTECTS YOUR BRAND

