

**Arthur D Little**

# Material efficiency

Preliminary proposal of KPIs

June, 2017



## What are the existing methods and tools?

Methods	Provider	Objectives	Methodology	Advantages	Main focus
ESSENZ	German industry (Siemens, Daimler, Evonik, ThyssenKrupp, ...)	Provide an method to assess resource efficiency	Assess the product performance on 19 indicators	Comparable scores including sustainability and availability	Focused on availability
Raw Materials Scoreboard	European Commission	Secure the supply of raw materials in the EU	Monitor each material throughout its existence, using 24 indicators	Macroeconomic supply risks and materials' life-cycle	Focused on availability
G4	Global Report Initiative (NGO)	Enable informed decision-making, by providing detailed CSR reports	Define sector-specific standards to be voluntarily disclosed by firms	Relevant sustainability KPIs	Focus on sustainable performance
Buy-to-fly ratio	Aeronautics sector	Reduce the material consumption	Monitors the rate of conversion of used materials into the final product	Deal with the value of the materials (use smart principle)	Cover all material efficiency except product end of life

Source: Global Report Initiative website, European Innovation Partnership on Raw Materials, Airbus at WMF2016, Essenz at WMF2016, WMF & Arthur D. Little analysis

## We interviewed 15 people to get their insights on material efficiency KPIs

Organization	Name
Airbus	Oliver Cauquil, Raphaël Duflos, Rodrigue Thenier
Arkema	Christan Collette
CleanTeQ	Sam Riggall
ESCP	Frank Bournois
Faurecia	Patrick Koller
GKN	Mickael Marucci
Gränges	Johan Menckel
Itacelmenti Group	Enrico Borgarello
IUCN	Carl Lundin
Mitsubishi Heavy Industries	Hiroaki Yamamoto
PSA	Maxime Picat
Sapa Group	Tolga Egrilmezer
Solvay	Gust Desmedt
Valspar	Cynthia Arnold
WEEE Forum	Pascal Leroy

Source: WMF & Arthur D. Little analysis

## Definition of the 8 preliminary KPIs

	Buy-to-use	Material value in the product / material value used in production
Use Less	Product weight	Total weight of the product
	End-of-life recycling	Weight of materials effectively recycled / total weight of materials
Use Longer	Product lifetime	Total lifetime of the product, from completion to waste
	Resale price	Resale price after Y years / initial price (Y is industry specific)
Use Smart	Overall product usage	% of the time the product is used relatively to its full capacity
	New & recycled materials	Weight of new or innovative materials / total weight of materials
	Product performance	Performance measurement of the product key functions vs. weight

Source: WMF & Arthur D. Little analysis