



HOW TO EMBARK OUR VALUE CHAIN FOR MATERIAL EFFICIENCY ? THE EXAMPLE OF CO₂ EMISSIONS



June 18th, 2021 - Nancy



PAST PRESENTATIONS AT WMF

Material efficiency KPIs

KPIs		Description
Use Less	Buy-to-use	Material value in the product / material value used in production
	% of recycled materials	Weight of recycled / total weight of materials in new product
	End-of-life recycling	Weight of materials effectively recycled / total weight of materials
	Energy	Total energy consumption to produce the product
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 Smarter	% of innovative materials	Weight of new or innovative materials / total weight of materials
	Product performance vs. weight	Performance measurement of the product key functions vs. weight
	Overall product usage	% of the time the product is used relatively to its full capacity

Source: WMF & Arthur D. Little analysis



KPI focused and implemented at Company level, but....

HOW TO EMBARK THE WHOLE VALUE CHAIN ?



4 QUESTIONS

- How to align a whole value chain on common KPI's ?
- How to develop tools that allow a value chain to speak the same language at the same time ?
- The increasing importance to have reliable and actionable data
- How to « push » the whole value chain to « adopt » that language ?

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CLAIMS FOR CARBON REDUCTION IN B&C



“ [...] We have made the commitment today to reach **zero net carbon emissions by 2050**. This long-term goal must guide all our strategic decisions, and must be a factor in ensuring our teams' cohesiveness and their additional commitment.

PIERRE-ANDRÉ DE CHALENDAR
Président-Directeur général



JLL
Real Estate Services
Tenant

JLL is a leading professional services firm that specialises in real estate and investment management. JLL shapes the future of real estate for a better world by using the most advanced technology to create rewarding opportunities, amazing spaces and sustainable real estate solutions for our clients, people and communities.



- 1 Commit**
Commit to only occupying assets that achieve net zero operational carbon globally by 2050.
- 2 Disclose**
Measure, assess and publicly disclose the energy and carbon emissions performance of portfolio via annual Global Sustainability Report.
- 3 Act**
Increase energy-efficiency measures in both new and existing buildings, switch to electric, low emission and alternative fuel vehicles, use renewable energy in offices, and buy renewable energy certificates when there is no direct supply.
- 4 Verify**
Verify scope 1 and 2 emissions and related energy consumption annually through assurance at a site and portfolio level in accordance with internationally recognised standards.
- 5 Advocate**
Commit to educating and influencing clients and suppliers to mainstream net zero carbon, influence policymakers and decisions, and drive action through industry engagement.



EP 100 | °C



HELSINKI, FINLAND
Further information
The Carbon-neutral Helsinki 2035 Action Plan
Helsinki Climate Watch



SYDNEY, AUSTRALIA
Further information
Environmental Strategy and Action Plan 2016-2021
City of Sydney Carbon Neutral



LENDELEASE EUROPE
Real Estate Investment Group
Tenant | Owner | Developer

Lenlease is an international property and infrastructure group with a development pipeline of over £20bn over the next 25 years. 'Leadership in Sustainability' is one of the organisation's strategic priorities, with a focus on decarbonising the organisation, the industry and to delivering significant social value from business activities.



Municipal Buildings

City of Sydney has been carbon neutral in its operations since 2007.

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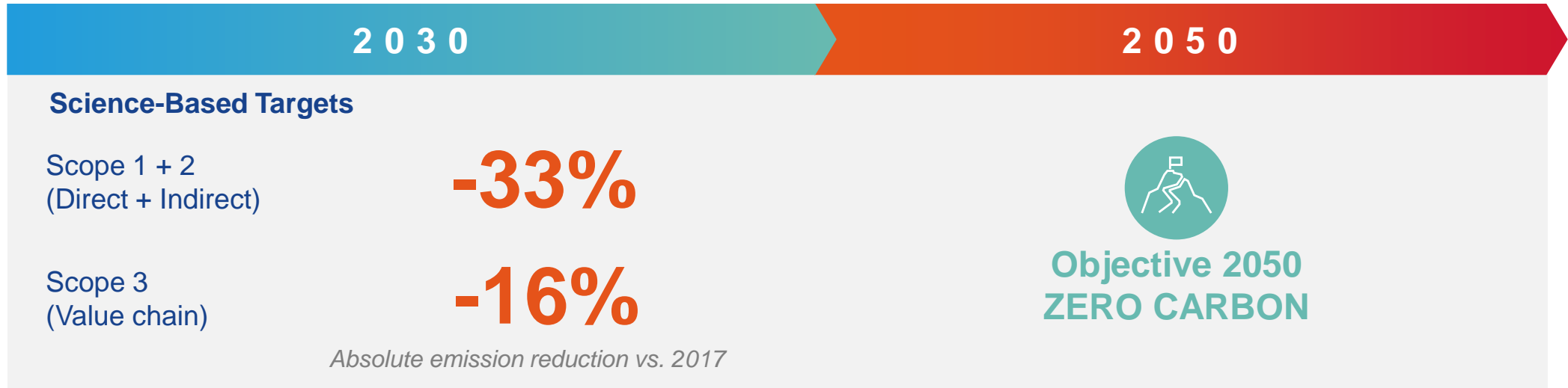
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WHAT DOES IT MEAN FOR SAINT-GOBAIN ?

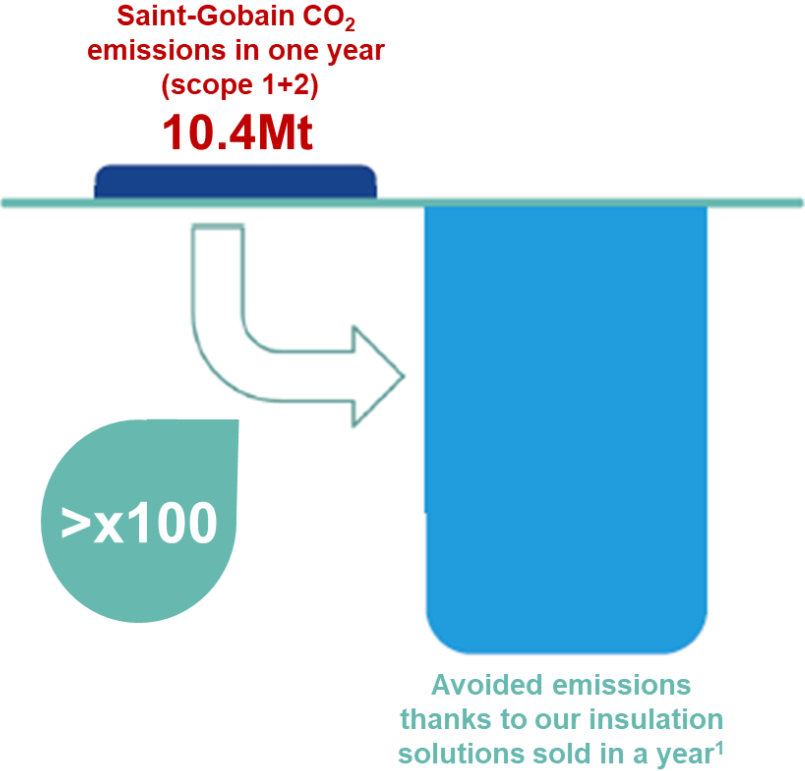
In our processes



In our solutions offering

- Offer the best low-CO₂ and **sustainable solutions in our markets**
- Enable our customers to **decarbonize their processes**

OUR PRODUCTS HELP OUR CUSTOMERS TO DECARBONIZE



Example of Glass wool

A typical ISOVER glass wool product has amortized the CO₂ emitted in its production, transport & disposal just **3 months** after installation



Eclaz Glass

- +20% energy efficiency
- +10% thermal insulation
- +10% solar gain

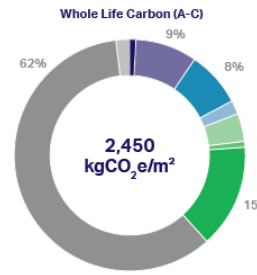
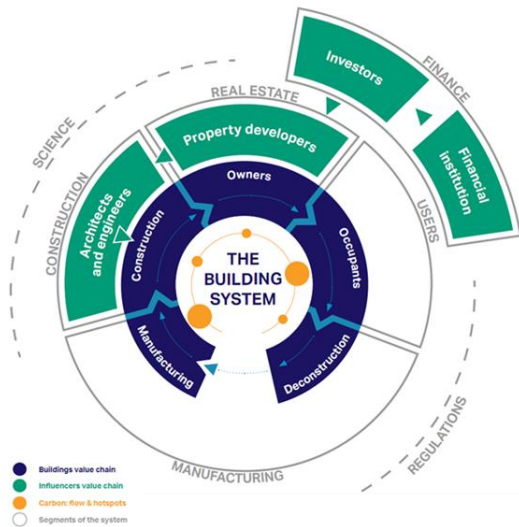
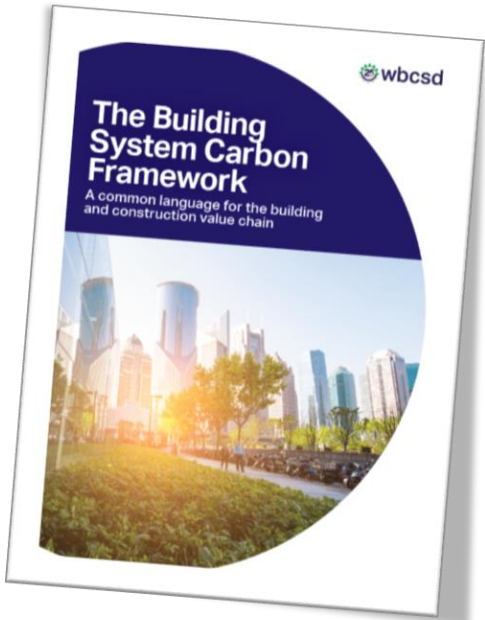


External thermal insulation

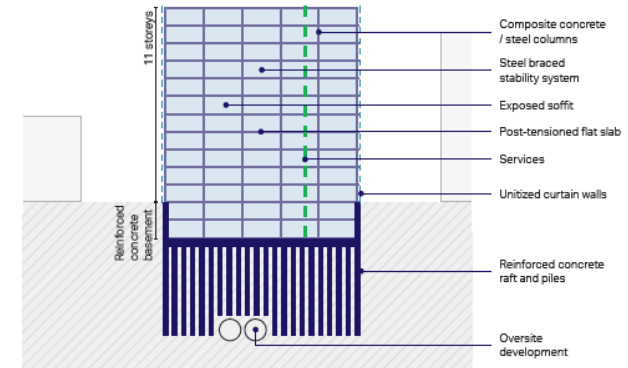
- 30% heating savings
- Gain of up to 3 energy classes

Life cycle benefits >> impact reduction

A COMMON LANGUAGE BASED ON LCA



CASE STUDY 01
Office building, London, UK



	BUILDING STAGES					
	PRODUCT	CONSTRUCTION	USE		END OF LIFE	BEYOND LIFE
	A1-A3	A4-A5	B1-B5	B6-B7	C	D
	kgCO ₂ /m ²					
BUILDING LAYERS	Structure Foundation, load-bearing					
	Skin Windows, roof, insulations					
	Space Plan Interior finishes					
	Services Mechanical, electrical, plumbing					
	Stuff (optional) Furniture & appliances					
	Building carbon emissions					
Carbon compensation Removals and offset						

Case Study 01		Building Stages						
Whole life carbon emissions kgCO ₂ e/m ²		Product	Construction	Use		End of life	A-C Emissions	Beyond Life
		A1-A3	A4-A5	B1-B5	B6-B7	C		D
Building layers	Substructure - RICS Level 1 Foundations, Lowest floor slab	36	2.5	0		1.1	39	-5.1
	Structure - RICS Level 2.1 - 2.4 Load-bearing, floors & roof	204	6.0	6		3.0	219	-48.0
	Skin - RICS Level 2.5 - 2.6 Windows and external doors	100	0.5	94		0.2	195	-56.0
	Space Plan - RICS Level 2.7 - 2.8 Partitions	16	0.1	16		0.1	32	-1.0
	Space Plan - RICS Level 3 Finishes	23	0.2	23		0.0	46	-0.1
	Stuff - RICS Level 4 Furniture & Appliances	5	0.0	10		0.0	15	-1.4
	Services - RICS Level 5 Mechanical, Electrical, Plumbing	120	0.5	240	1,512	1.4	1,873	-18.7
	Site emissions (A5) Waste, electricity, fuel		30				30	
	Embodied carbon emissions	503	40	388		6	937	-130
	Operational carbon emissions				1,512		1,512	
Building carbon emissions		503	40	388	1,512	6	2,449	-130

● Embodied carbon ● Operational carbon ● Partial and total sums

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DIGITAL AS A CHANGE BOOSTER FOR MATERIAL EFFICIENCY

CUSTOMER EXPERIENCE



AI & DATA ANALYSIS

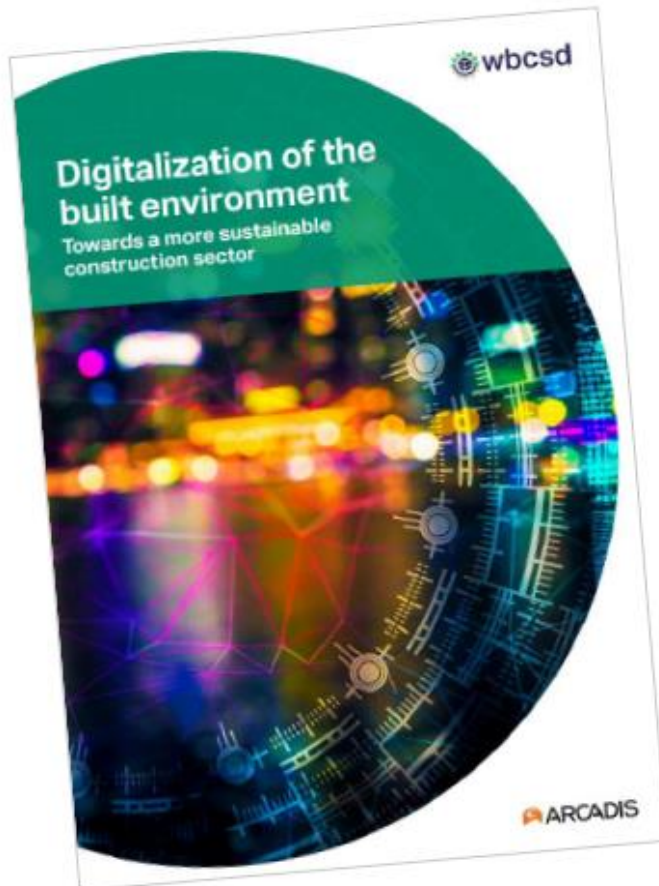


BIM



INTEGRATED SUPPLY CHAIN

BUT MANY CHALLENGES TO HAVE THE FULL DIGITAL TWIN



Harmonization

Create harmonization to facilitate information exchange, increase mutual understanding and stimulate scaling digitalization in the constructions sector.



Facilitate collaboration

Encourage platform collaboration to co-create innovations, exchange relevant information flows, support collaboration and harmonization.



Support capacity building

Support capacity building by stimulating education and awareness. Develop knowledge and share open source data about the built environment.



Provide resources to scale

Provide resources to experiment with, to test and scale digitalization. Use regulations and compliance systems to create a level playing field for scaling promising digital developments.



Change procurement to foster innovation

Procurement strategies traditionally are risk-based and award low prices and tight planning. Procurement needs to foster innovation and stimulate cross sectoral collaborations.

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THE WORLD OF BIG DATA

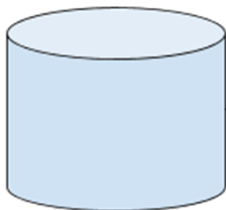
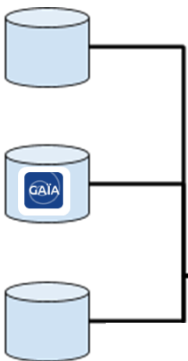
Work in progress

Business & Supply chain data

ERP

EHS reporting tool

Emission Factors Database



Data Warehouse



Visualization



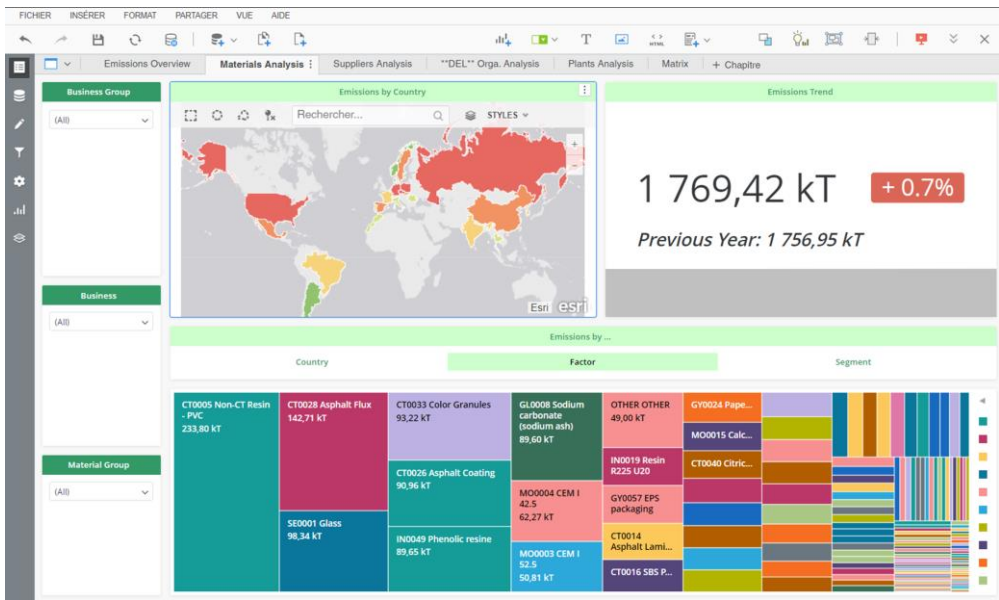
BI

Visualization :
monitoring and
decision making

180 000 suppliers



Millions of km



Update February 2021



MORE THAN
1230
VERIFIED
EPDs

Number of EPDs
per activity



BASED ON
INTERNATIONAL
STANDARDS:
ISO 14025,
ISO 21930/EN 15804



Some of our brands which have EPDs



Countries where products are covered by EPDs



Program operators where our EPDs are published:



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AT A LEVEL OF A COMPANY

Engage
all our
suppliers

Levers

- Responsible purchasing charter
- SBT approach adoption
- Data transparency
- Benchmarking, selection criteria

Reduce
emissions
from
transport

Levers

- Optimize logistics
- Improve fuel efficiency
- Use decarbonized fuels
- Replace road by rail & water



Leverage our impact on the value chain



BEYOND THE ACTION OF A COMPANY

Relevant KPI's and data can feed

- Regulation (E+C regulation for buildings, public purchasing...)
- Sustainable finance – TCFD, taxonomy, green bonds,
- Standardisation (LCA, ...)
- How to disclose (CDP, ...)



Material efficiency KPIs

KPIs		Description
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Source: WMF & Arthur D. Little analysis