HOW TO EMBARK OUR VALUE CHAIN FOR MATERIAL EFFICIENCY ? THE EXAMPLE OF CO_2 EMISSIONS

WORLD MATERIALS FORUM

June 18th, 2021 - Nancy

SAINT-GOBAIN

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….

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HOW TO EMBARK THE WHOLE VALUE CHAIN ?

City planners

Governments

Investors

Academia

Students

The path to success

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

THE GLOBAL COMPACT UNITED NATIONS GLOBAL COMPACT

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

C40 CITIES

EP 100 °C

SWECO

ARCADIS

SKANSKA

VINCI

How to make sure that each target is "feeding" each other

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WHAT DOES IT MEAN FOR SAINT-GOBAIN ?

In our processes

2030 → **2050**

Science-Based Targets

Scope 1 + 2 (Direct + Indirect)	**-33%**
Scope 3 (Value chain)	**-16%**

Absolute emission reduction vs. 2017

Objective 2050
ZERO CARBON

In our solutions offering

- **Offer the best low-CO_2 and sustainable solutions in our markets**
- **Enable our customers to decarbonize their processes**

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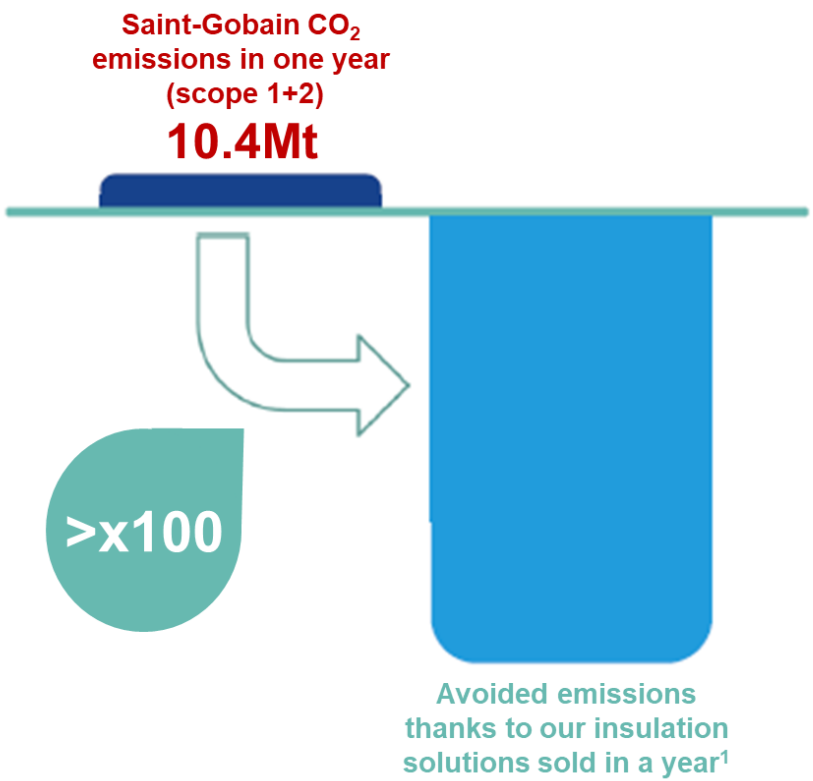
OUR PRODUCTS HELP OUR CUSTOMERS TO DECARBONIZE



Example of Glass wool

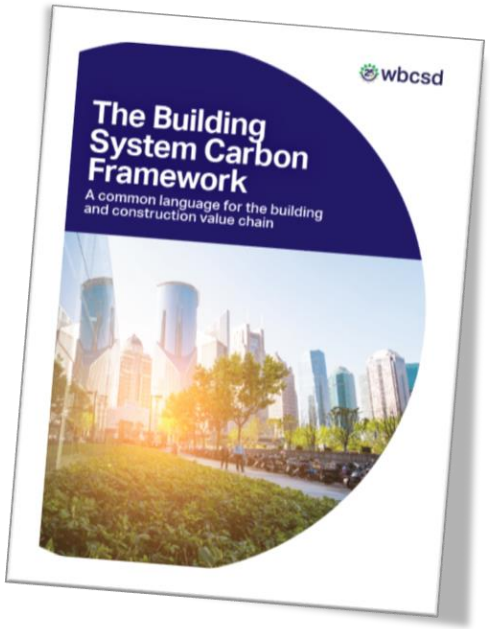
A typical ISOVER glass wool product has amortized the CO_2 emitted in its production, transport & disposal just **3 months** after installation

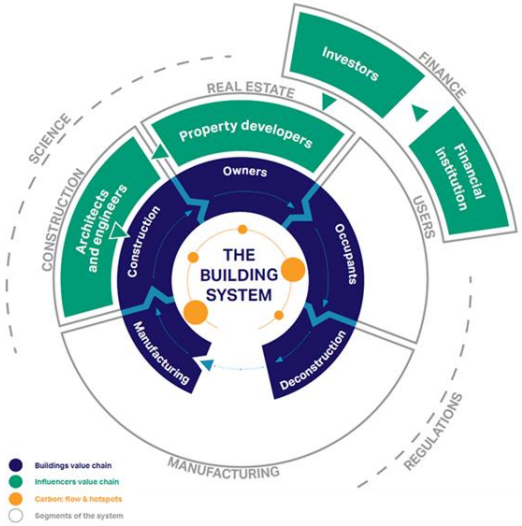
Eclaz Glass
+20% energy efficiency
+10% thermal insulation
+10% solar gain

External thermal insulation
30% heating savings
Gain of up to **3** energy classes

Life cycle benefits >> impact reduction

A COMMON LANGUAGE BASED ON LCA



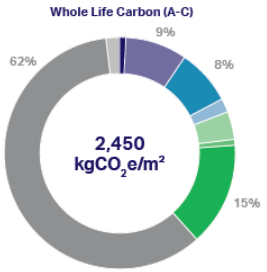


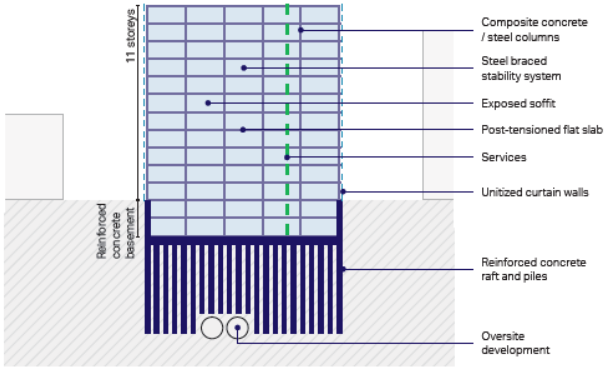
BUILDING STAGES							
		PRODUCT	CONSTRUCTION	USE		END OF LIFE	EMISSIONS	BEYOND LIFE
		A1-A3	A4-A5	B1-B5	B6-B7	C	$kgCO_2/m^2$	D
BUILDING LAYERS	**Structure** Foundation, load-bearing							
	Skin Windows, roof, insulations							
	Space Plan Interior finishes							
	Services Mechanical, electrical, plumbing							
	Stuff *(optional)* Furniture & appliances							
	Building carbon emissions							
	Carbon compensation Removals and offset							

Embodied carbon Operational carbon Partial and total sums

CASE STUDY 01

Office building, London, UK





Case Study 01		Building Stages						
Whole life carbon emissions $kgCO_2e/m^2$		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

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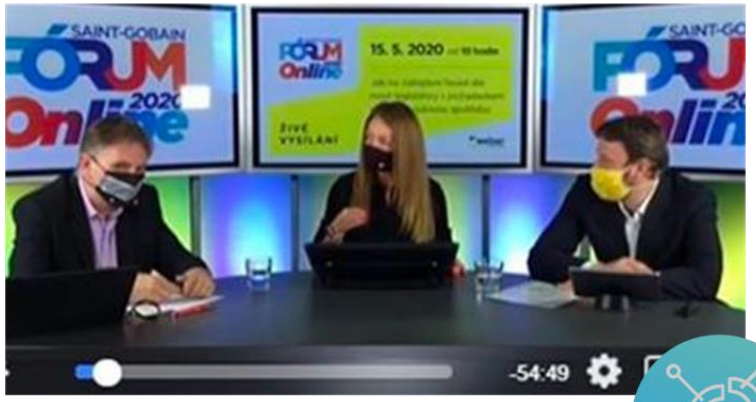
DIGITAL AS A CHANGE BOOSTER FOR MATERIAL EFFICIENCY

CUSTOMER EXPERIENCE



BIM

AI & DATA ANALYSIS

INTEGRATED SUPPLY CHAIN

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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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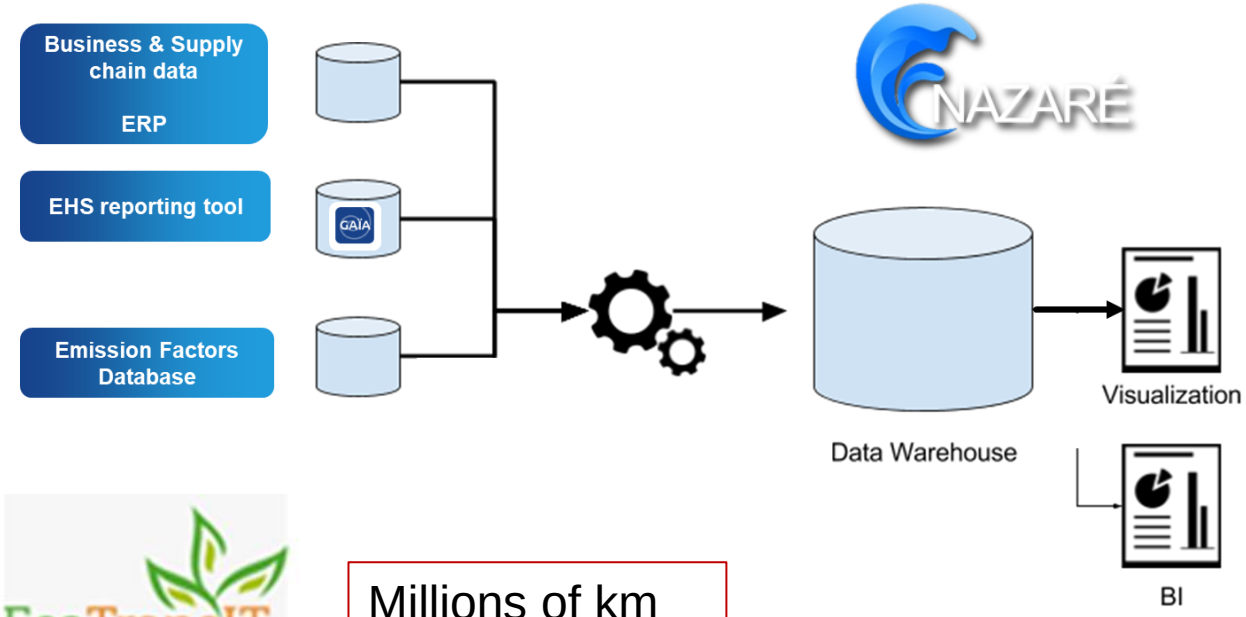
THE WORLD OF BIG DATA ….



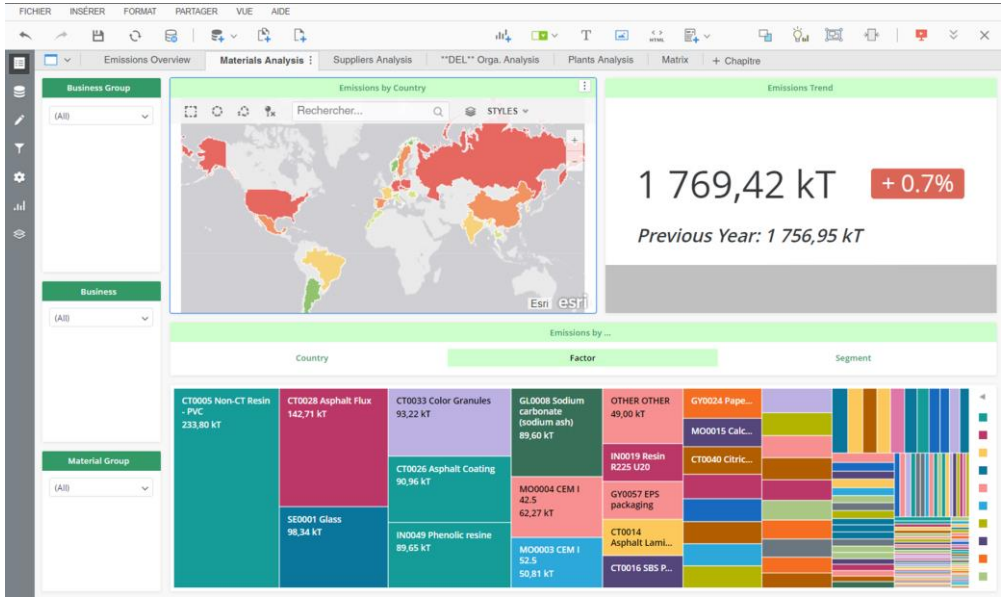
Visualization : monitoring and decision making

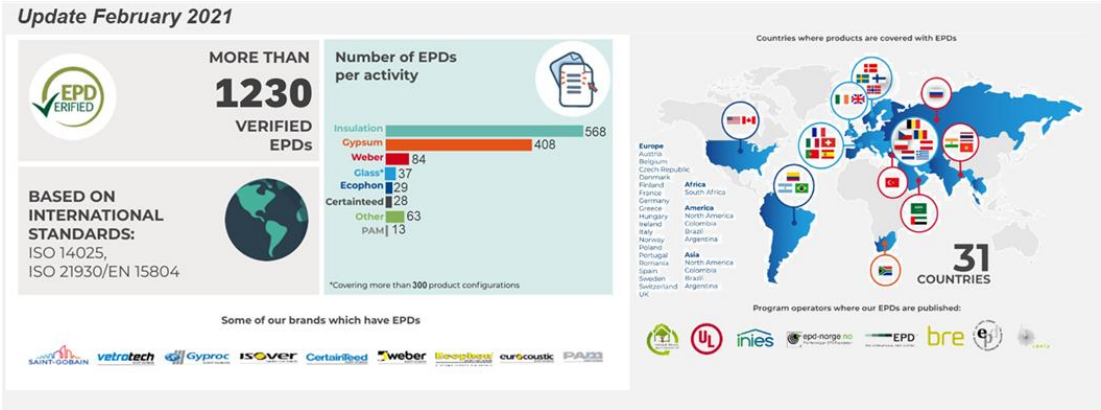
Work in progress

180 000 suppliers ….

EcoTransIT World

Millions of km





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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

1. Natural Gas Vehicle

BEYOND THE ACTION OF A COMPANY

Relevant KPI's and data can feed

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

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