SUSTAINABILITY PERFORMANCE EVALUATION FOR SELECTING THE BEST RECYCLING PATHWAY DURING ITS DESIGN PHASE

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Presentation of MTB Company trades

Machines de Triage et de Broyage

Sorting and shredding machinery

- Recycling of complex objects
- Manufacturing of equipment for sorting and shredding
- Integration and engineering of recycling solutions

MTB Sustainability Approach

Recycling: Focus on quality rather than quantity

- Ensure recycled materials purity
- No smelting process needs for recycled metals
- Closed-loop recycling for automotive industry

Manufacturing: Build to last long

- Sturdy design for machinery
- Simple but effective equipment
- Remanufacturing solutions

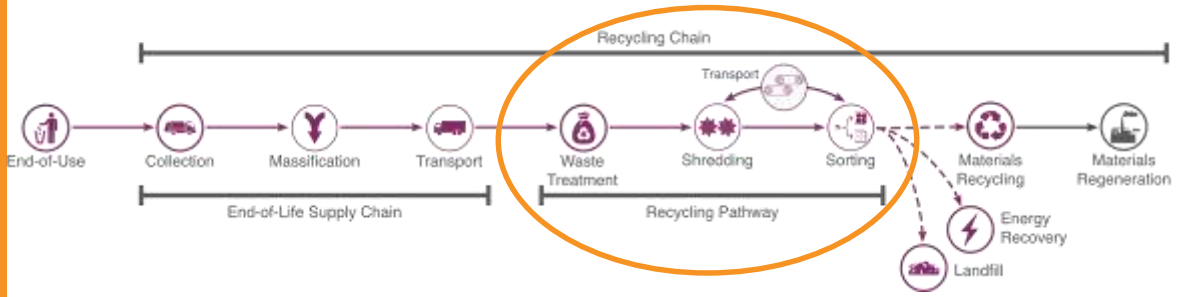
Engineering: Find outlets for all materials

- Working on complex objects such as e-waste, industrial waste, shredding residues, bottom ash, etc.
- Specific solutions for specific waste: BLUBOX (flat screen and lamps), CABLEBOX, TYREBOX, etc.
- Custom-made solutions: artificial turf, ammunition, offset boards, etc.

Study scopes

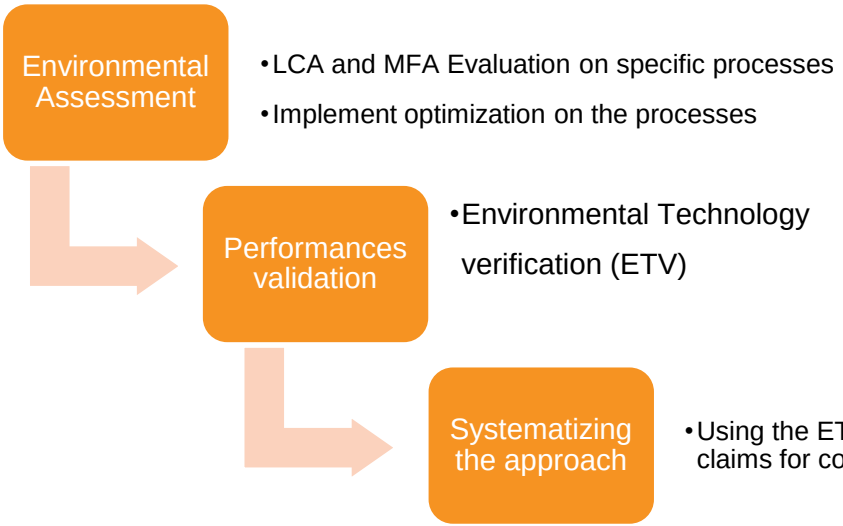
How to assist decision-making during the design phase of recycling pathways?

–Focus on pre-recycling processes



METHODOLOGICAL FRAMEWORK

Step-by-step approach



The purpose of our work is to provide customers with the results of the environmental evaluation during the design phase

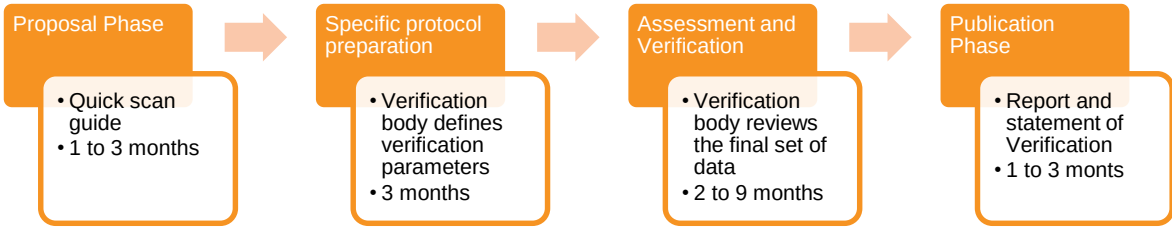
ETV: Environmental Technology Verification

ETV is a new tool to help innovative environmental technologies to reach the market

– Verification Body verify claims about technology performance

– ETV process release the Statement of Verification used as evidence of scientific credibility

ETV is defined by ISO 14034 standard



BUT the ETV verification process is time consuming and required a lot of data

– All ETV verification steps combine together last 6 to 18 months

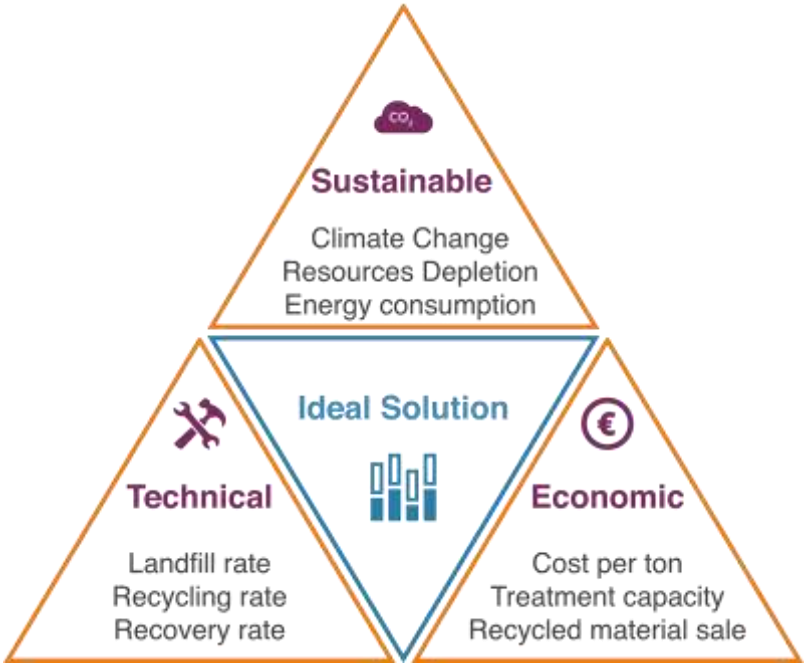
– Laboratory needs to certify results and claims

– Not suitable for comparison of many processes at the design phase

Performance indicators selection

2 stages selection

1. Indicators necessary for the stakeholders
2. Indicators from ETV verification basis



Recycling pathway modelling

RESULTS

Each process is defined by different elements in the database:

–Generic and variable LCI data

–Variable technical data output

–Economic data

Each step of the recycling pathway is modelled as:

Recycling pathway evaluation

Input data comes from customer specifications used for:

–Pathways design draft

–Process step selection

Engineering team selects

–Operational details

–Process parameters

Evaluation is done by summing

–Every unit process performance

RESULTS

Next steps for our work

Complete the database

–Implement data from MTB equipment and processes

–Add processes from other manufacturers

–Stay wide for new technologies coming on the market

Implementing the design steps to introduce our tool

–Modification of the bill of specifications to take into account some LCA Inventory Information

–Add connections between the various design tools

–Provide the evaluation results to customers

CONCLUSION

THANK YOU FOR YOUR ATTENTION

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