




VRA + SWANA
BACK TO THE SHORE,
FORWARD WITH SOLUTIONS
• 2026 CONFERENCE •

The Role of Material Recovery Facilities (MRFs) in the Circular Economy

Virginia Recycling Association / SWANA Old Dominion Conference
Thursday, April 9, 2026

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Chris Lund, P.E.

GBB Executive Vice President

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Today's Agenda



Introduction

1. Circularity
2. Technologies
3. MRF Data
4. Possibilities
5. Challenges

Questions / Contact Info


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Our Story

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GBB is an international solid waste management consulting firm that helps public- and private-sector organizations craft practical, customized and technically sound solutions for complex solid waste management challenges.

Since 1980, GBB has been a trusted resource at the forefront of the industry, creating success stories that integrate smart planning with effective management of solid waste services. Our staff enables our clients to do more with less.




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Our Vision


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We believe in a world where discarded materials are used as resources rather than wasted – for the benefit of communities and the environment.




Communities

We are guided by our principles of quality, value, ethics, and results to help communities of all shapes and sizes.



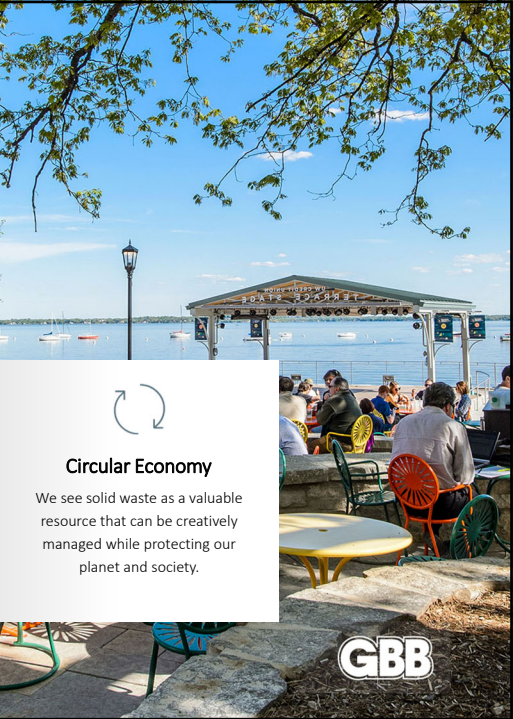

Environment

We believe effective management of solid waste is an imperative that directly affects our planet- both today and far into the future.




Circular Economy

We see solid waste as a valuable resource that can be creatively managed while protecting our planet and society.





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Our Comprehensive Services



- Solid Waste Management Planning
- Technical Evaluation & Planning
- Business & Financial Planning
- Curbside Collection & Route Optimization
- System Administration & Receivership
- Sustainability, Circular Economy & Disaster Debris Planning
- Expert Witness



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Circularity and MRFs

“Like all major transitions in human history, the shift from a linear to a circular economy will be a tumultuous one. It will feature heroes and pioneers, naysayers and obstacles, and moments of victory and doubt. If we persevere, however, we will put our economy back on a path of growth and sustainability. Many years from now, people will look back on it as a revolution.”

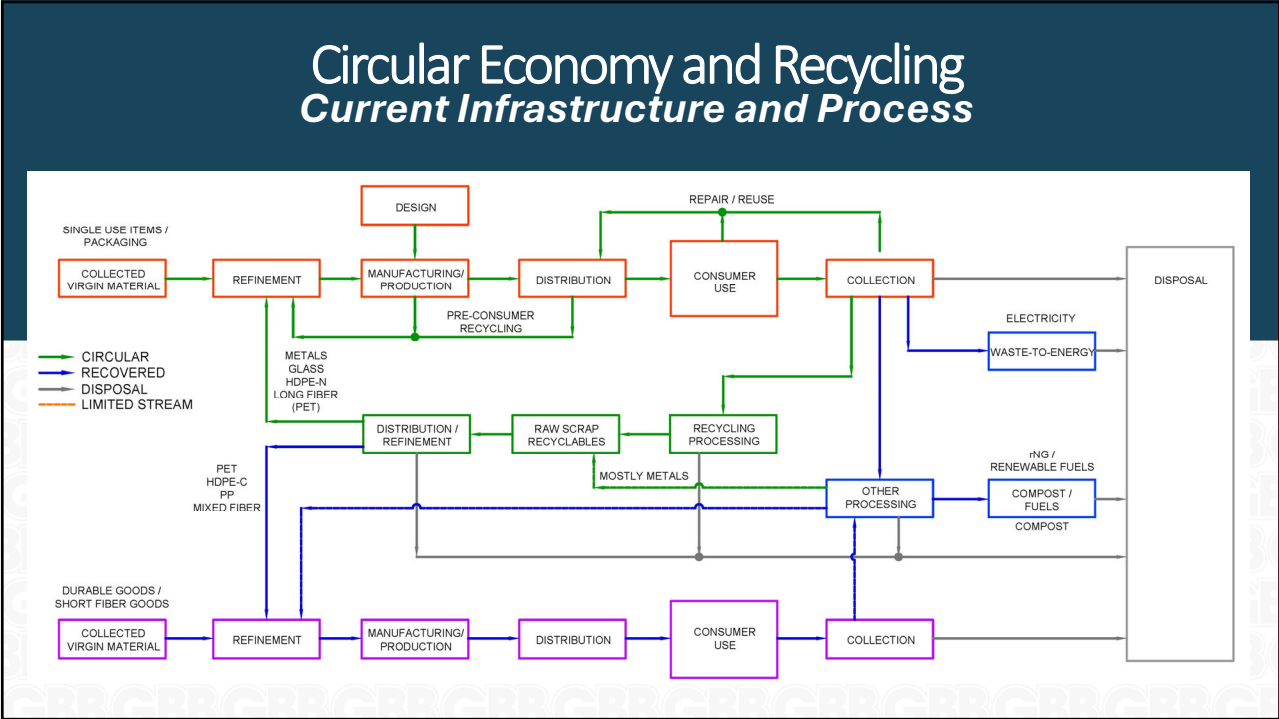
– Frans van Houten (CEO of Philips Healthcare)



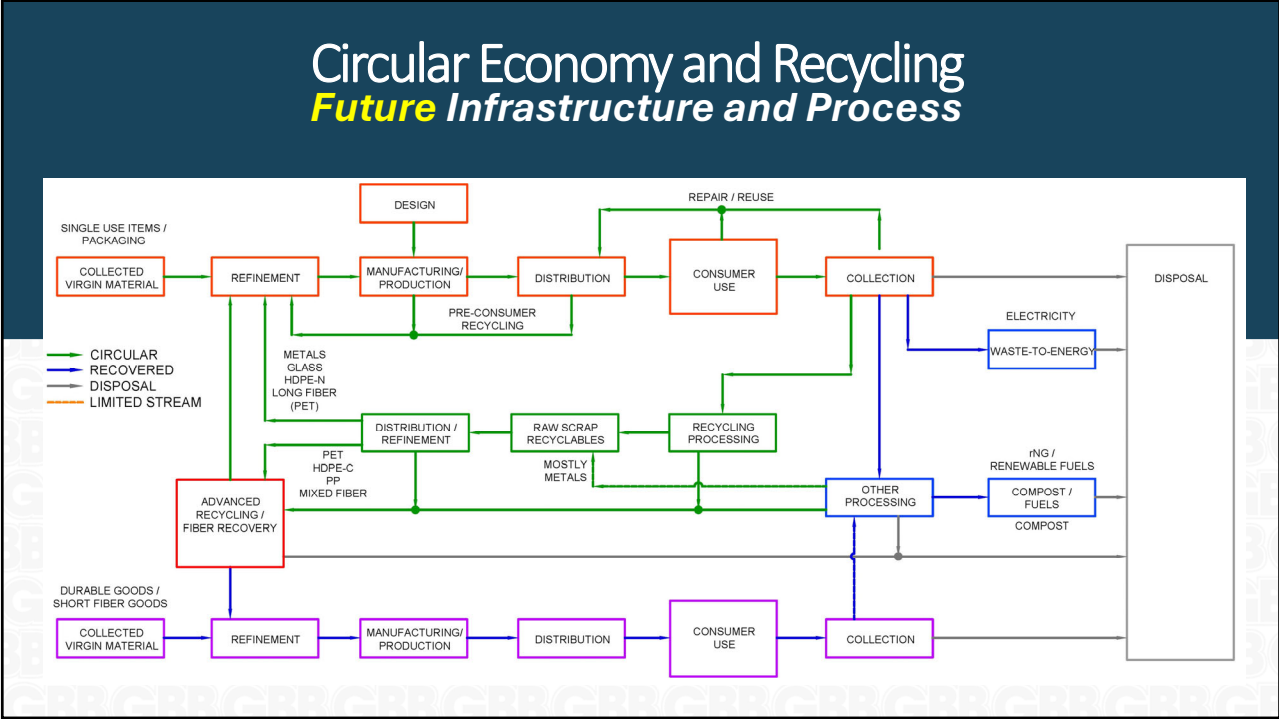
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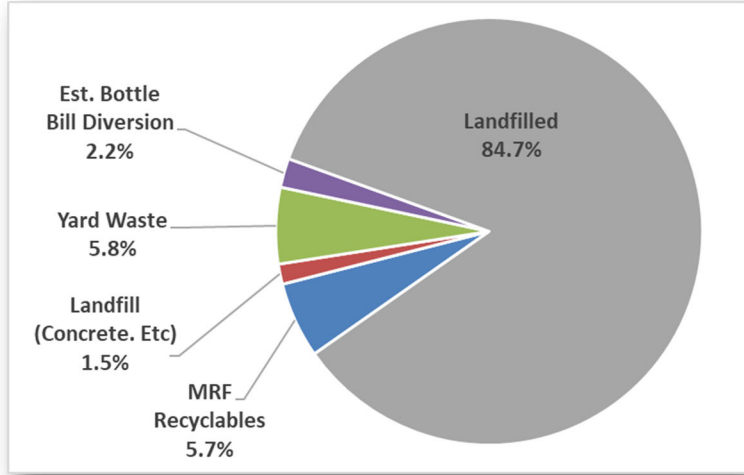
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Current Collection and Processing



Source: GBB – Kent County, MI 2021

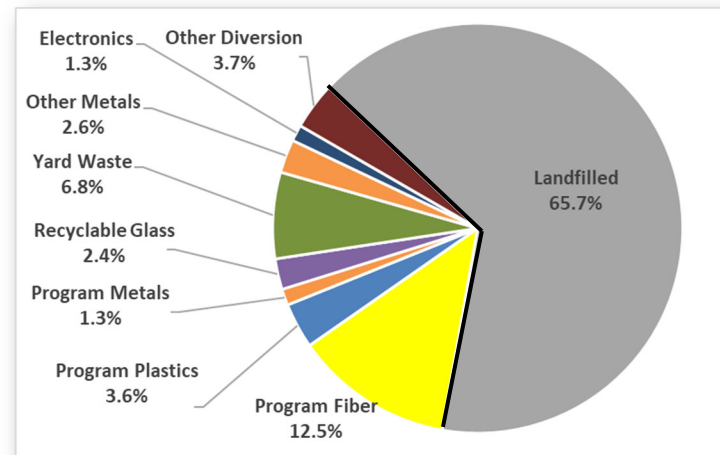


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Ideal Collection and Processing

What if All Program Materials (MRF) Were Recovered



Source: GBB – Kent County, MI 2021



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MRF Data

"We are drowning in information but starved for knowledge."

- John Naisbitt (Autor of Megatrends)

A photograph of two men in a meeting. One man is seated at a table with a water bottle and a glass, while the other man stands behind him, smiling. The background is a plain wall.

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Basic MRF Operating Data

Daily Operating Report

1. Throughput (Daily Deliveries)
2. Commodity Production (tonnage, bale counts)
3. Residual (tonnage, disposal or rerun)
4. Uptime/Downtime (reasons for downtime)
5. Labor Utilization (number and location)
6. Maintenance (regular, unscheduled, lock-out/tag-out)
7. Pictures (feedstock, residual, bales, maintenance)

The GBB logo is located in the bottom right corner of the slide, consisting of the letters 'GBB' in a bold, sans-serif font inside a grey trapezoidal shape.


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What we do


Greyparrot Analyzer is an **AI waste analytics system** that tracks and reports insights on waste flows in recovery facilities




Camera unit




AI Integration

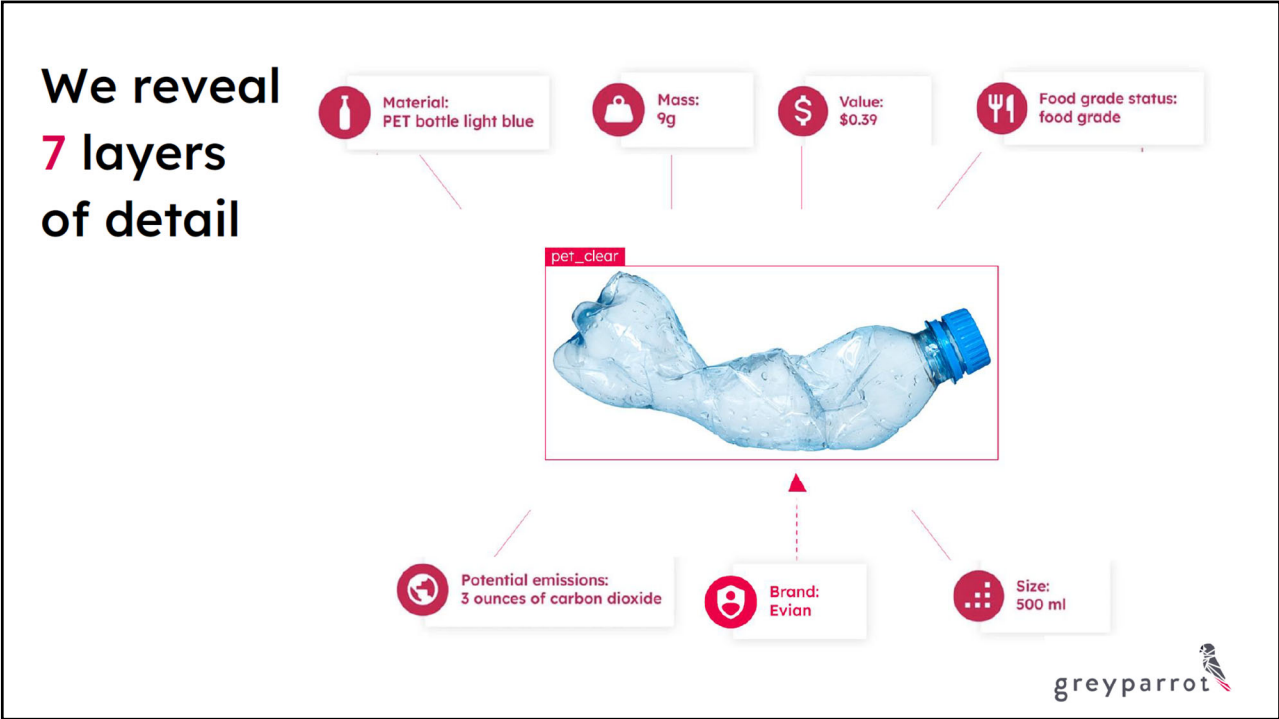


Dashboard

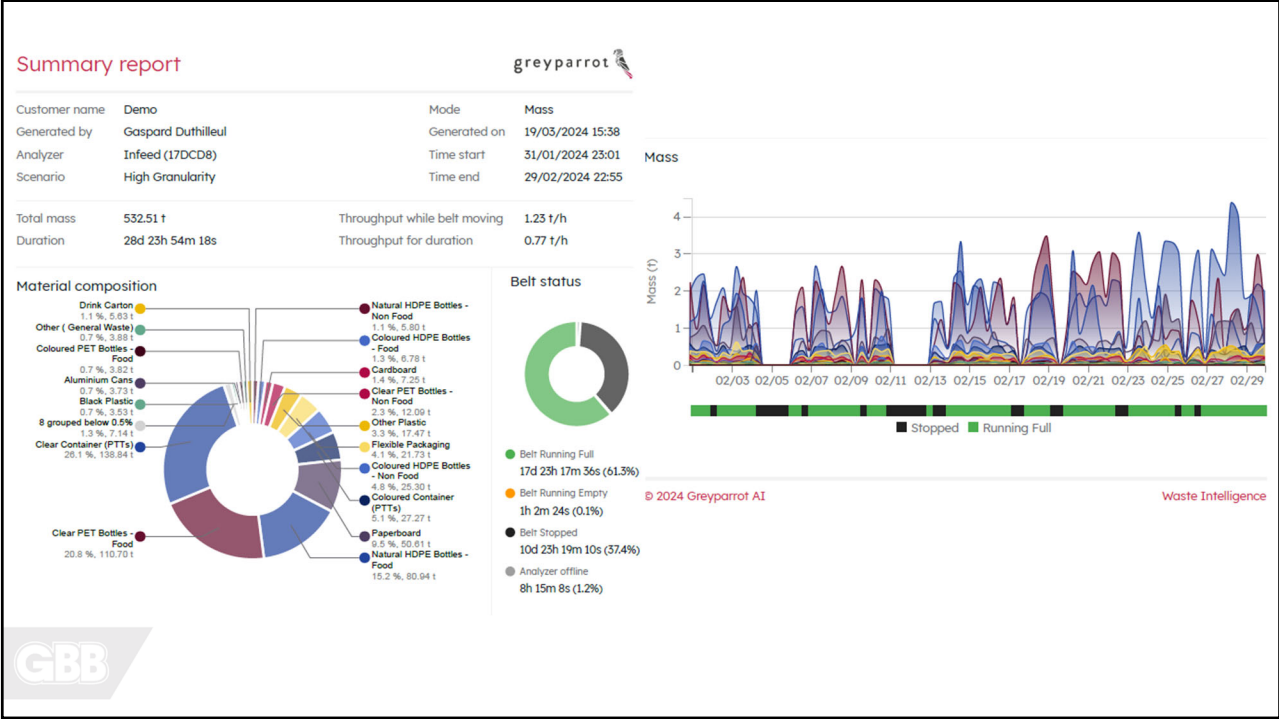




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Introduce transparency: Tracking waste packaging

Brand and SKU data are automatically detected with AI

- **1800+ SKUs**, around 3m items
 - From international and local brands
 - Up to **30+** SKUs for **one single brand**
- **Flexibility** to expand by:
 - Brands
 - Waste streams
 - Geographies

The diagram illustrates the AI tracking process for waste packaging. It features three brand categories: MARS (with products like Twix, KitKat, and M&M's), DANONE (with products like Activia and Danone water), and COLGATE-PALMOLIVE (with products like Colgate toothpaste). Below each brand, images show the original product and corresponding AI-detection boxes overlaid on images of the same products in a waste stream. The greyparrot logo is located at the bottom right of the diagram.

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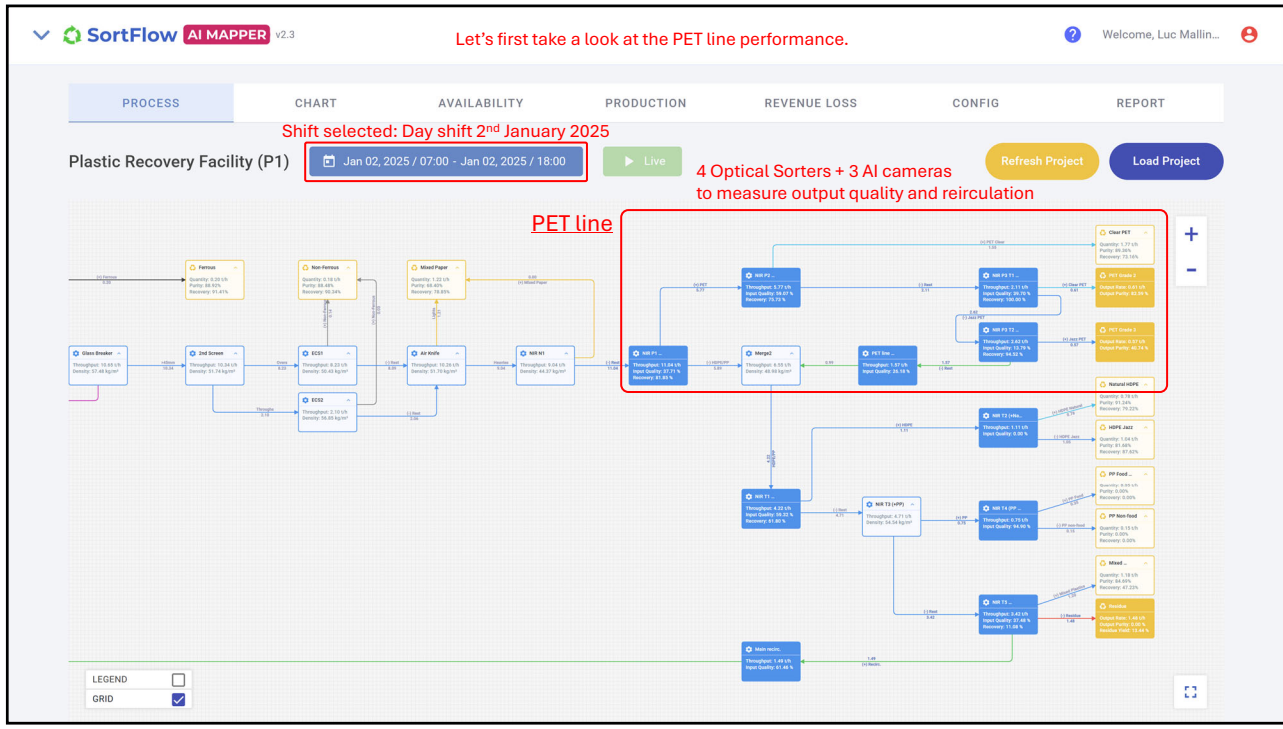
Possibilities

"We cannot solve our problems with the same thinking we used when we created them."

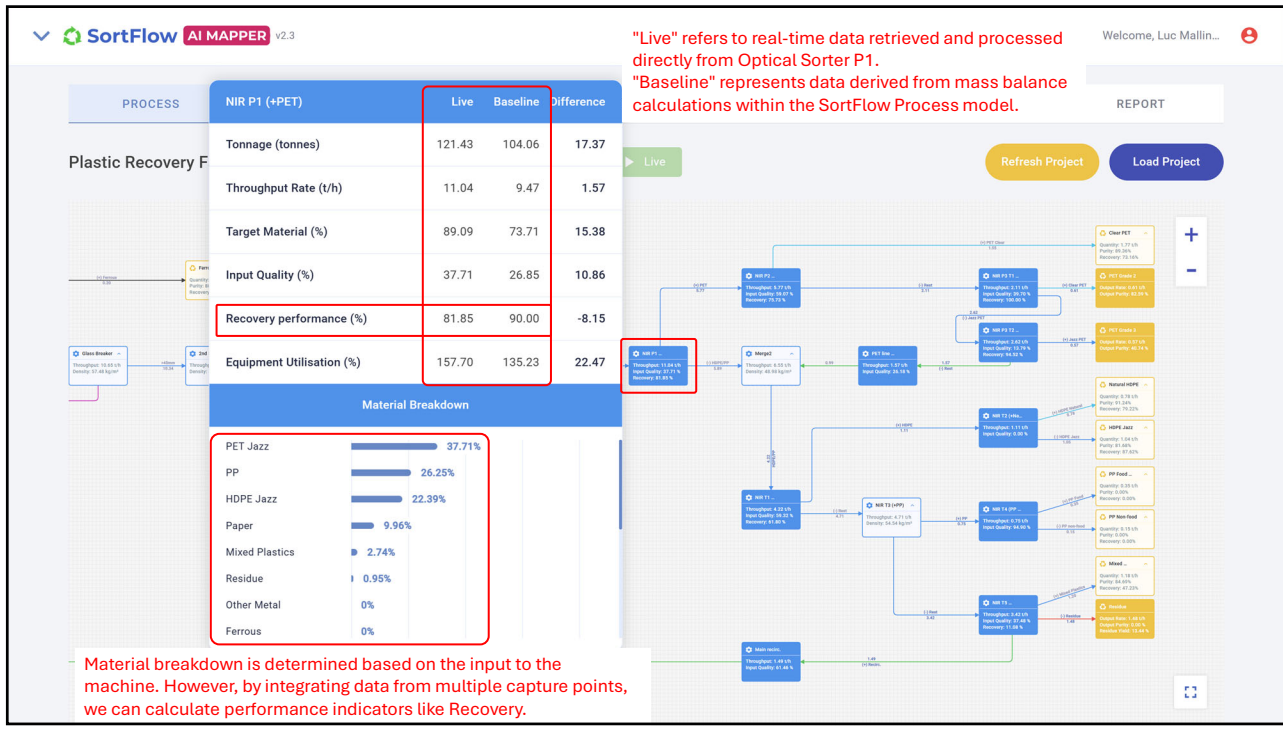
– Albert Einstein

The image shows a circular display table in a museum or exhibition space. The table is covered with various items, including a large red circular sign with the number '10', a green sign that says 'JOBS IN RECYCLED', and a large image of an airplane with the text 'MADE FROM RECYCLED ALUMINIUM'. The table is surrounded by other exhibits and people in the background.

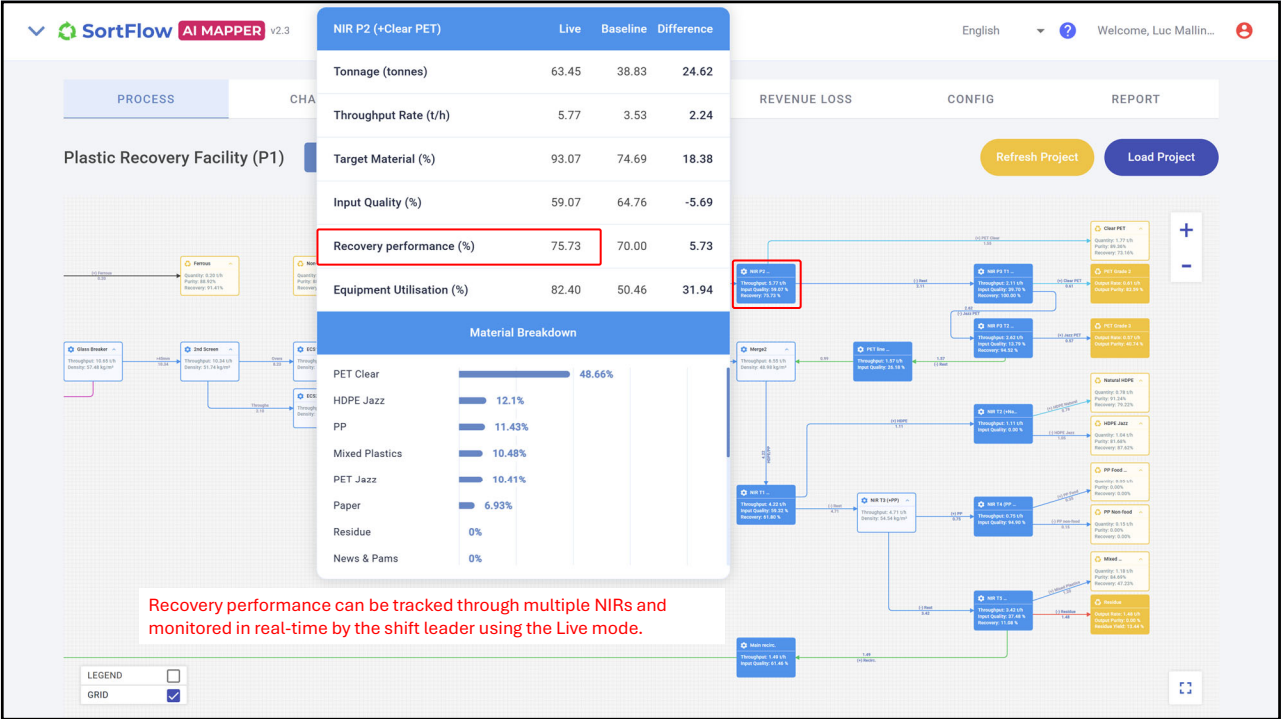
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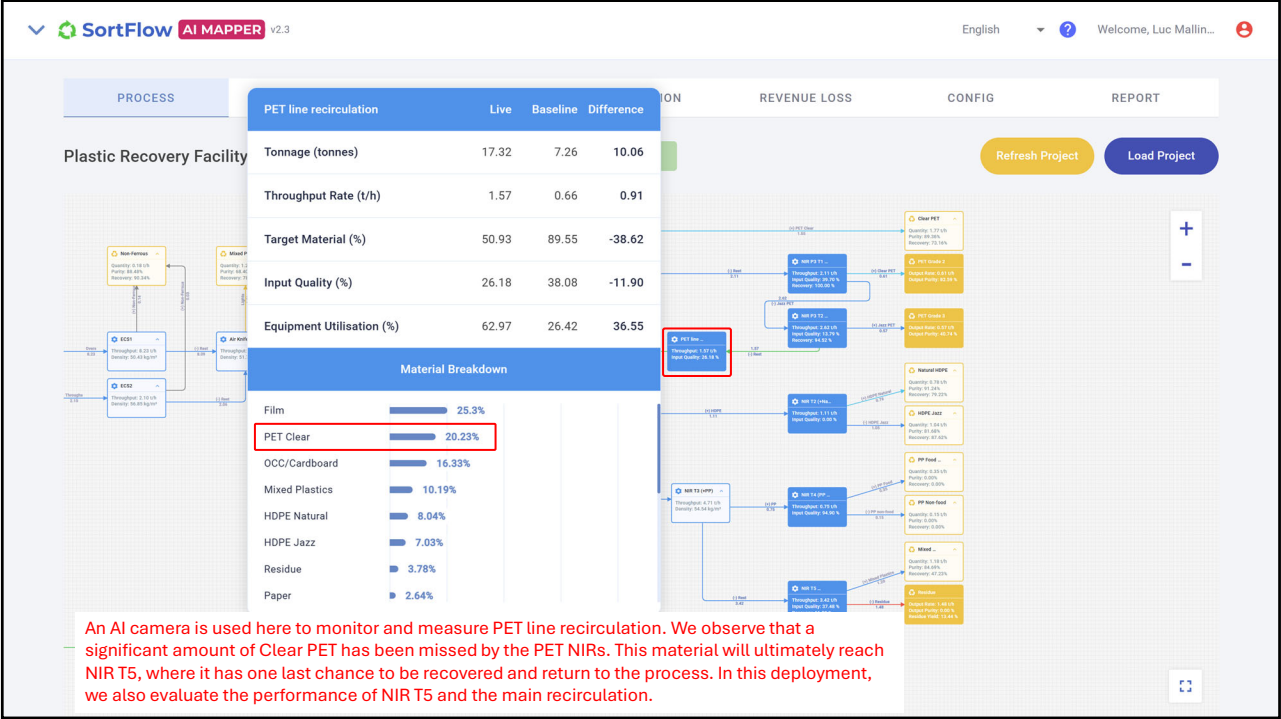
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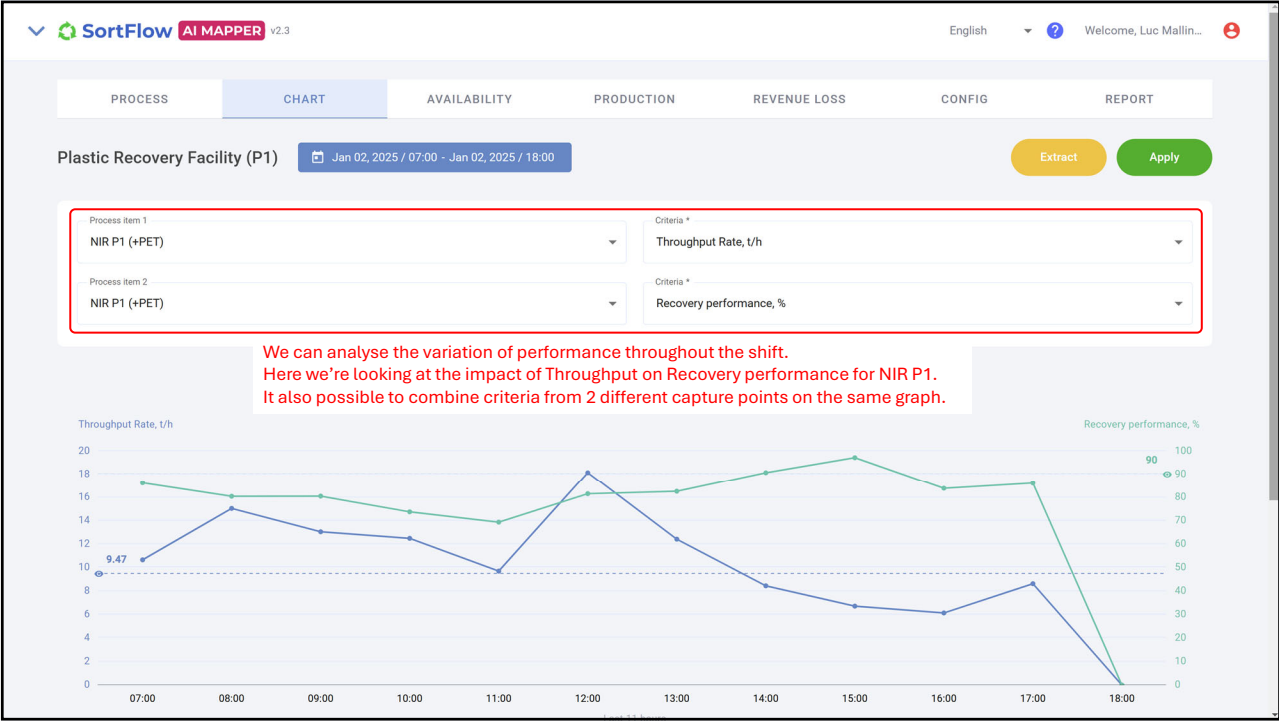
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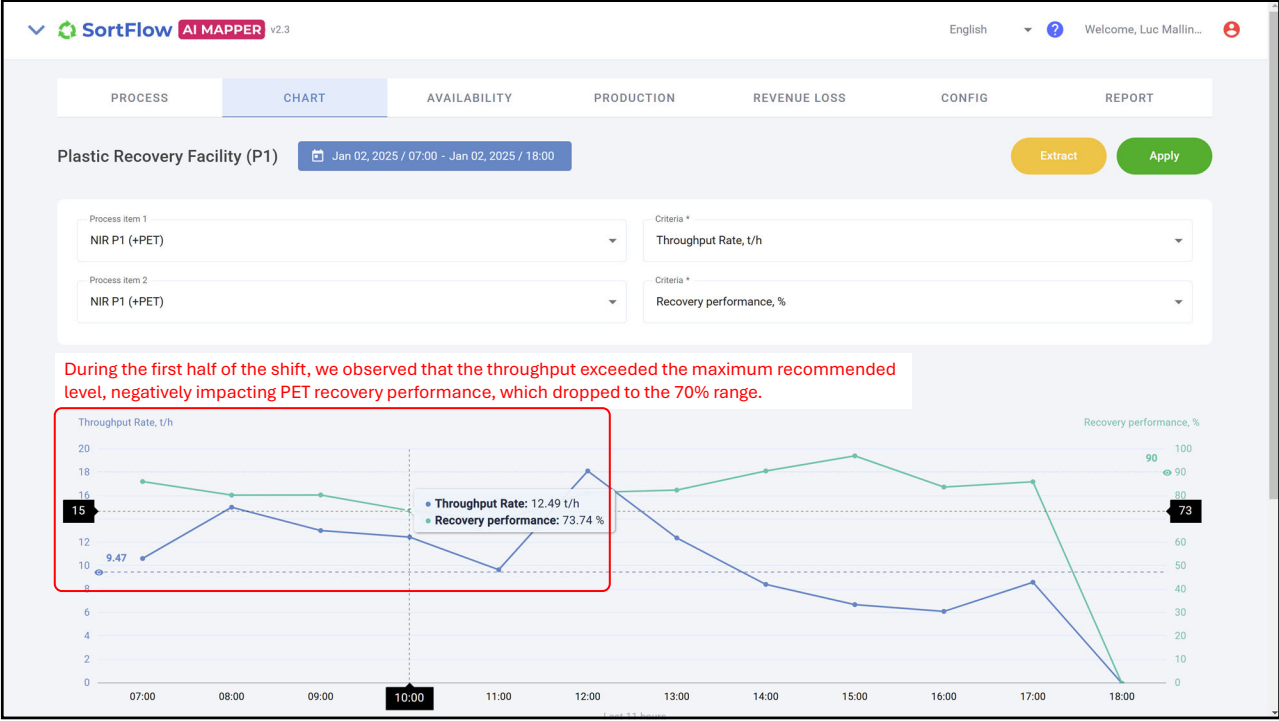
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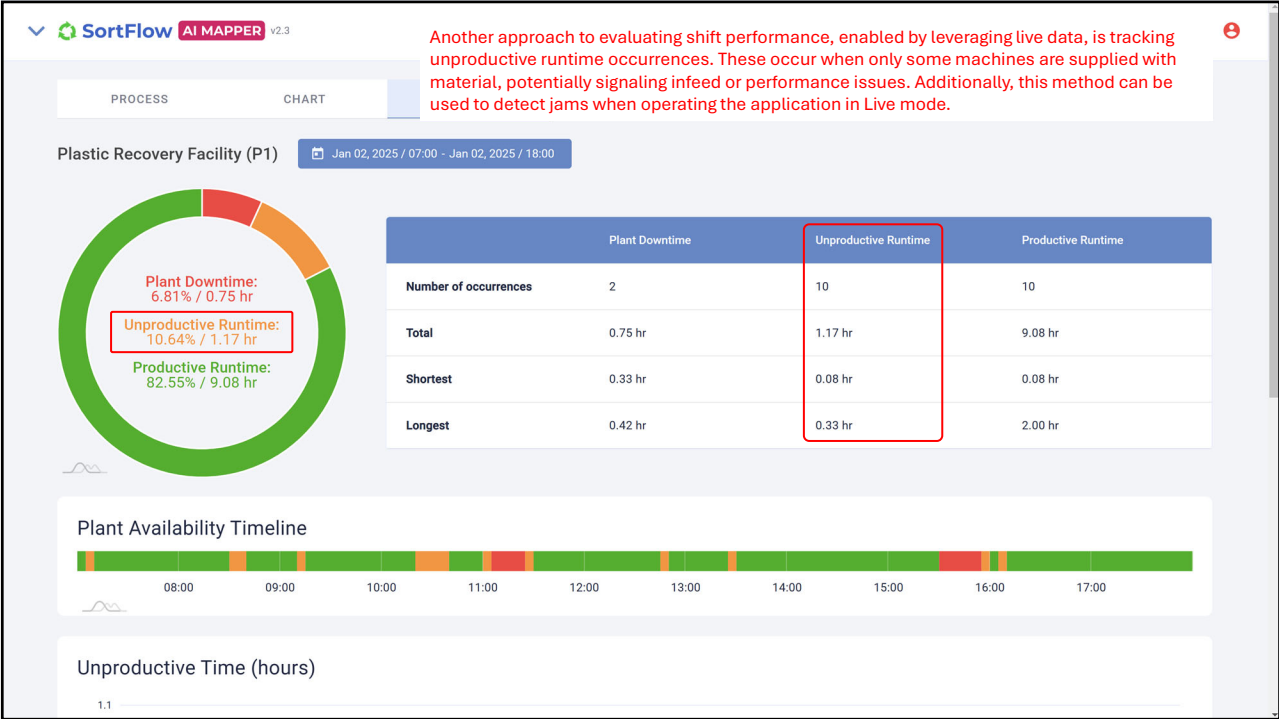
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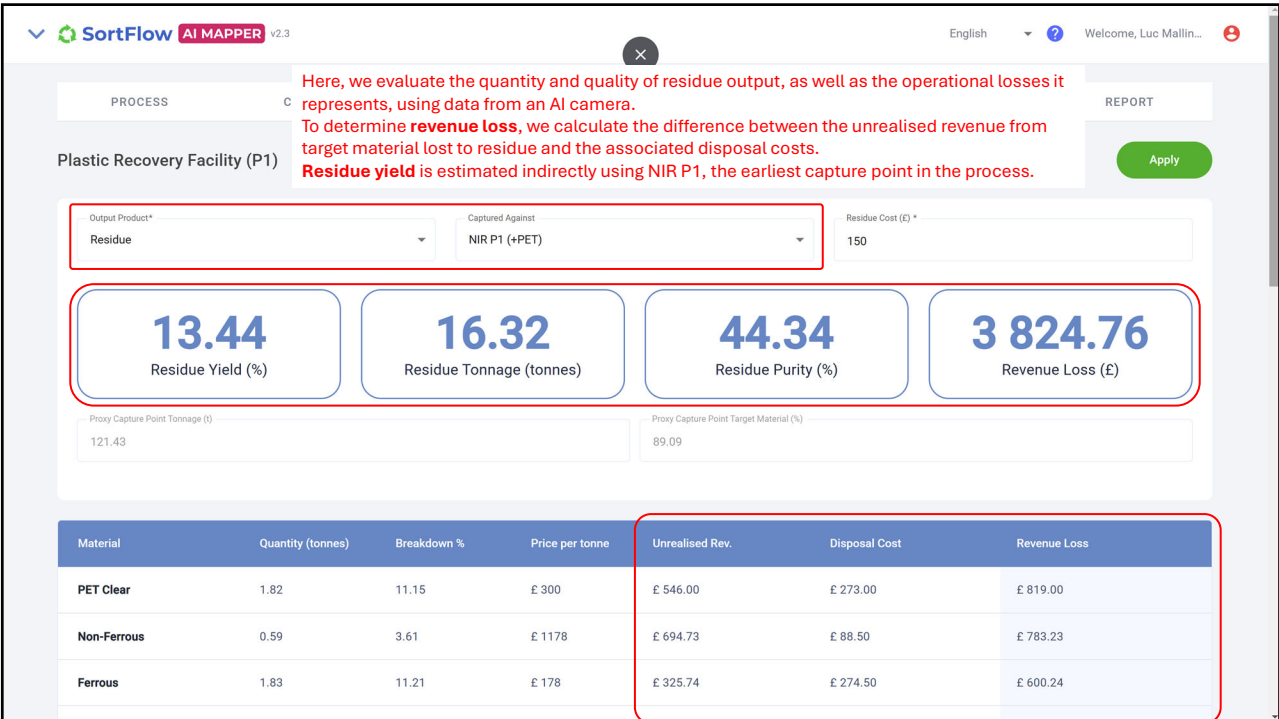
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Challenges

“Often when you think you're at the end of something, you're at the beginning of something else.”

— Fred Rogers



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What are the challenges we face?

- **Rapid changes in technology**
How do we decide when is the right time to jump in?
- **Scalability**
What works best for rural/small communities?
- **Extended Producer Responsibility (EPR)**
Variations from State to State.
- **Data**
Who is going to process all the data?
Is the data quality uniform throughout the program?
- **What role does advanced technologies play?**

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Thank You!



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"I help clients find efficient, environmentally acceptable solutions to sustainable materials management, from planning and design development, through permitting, construction management, and start-up operations."