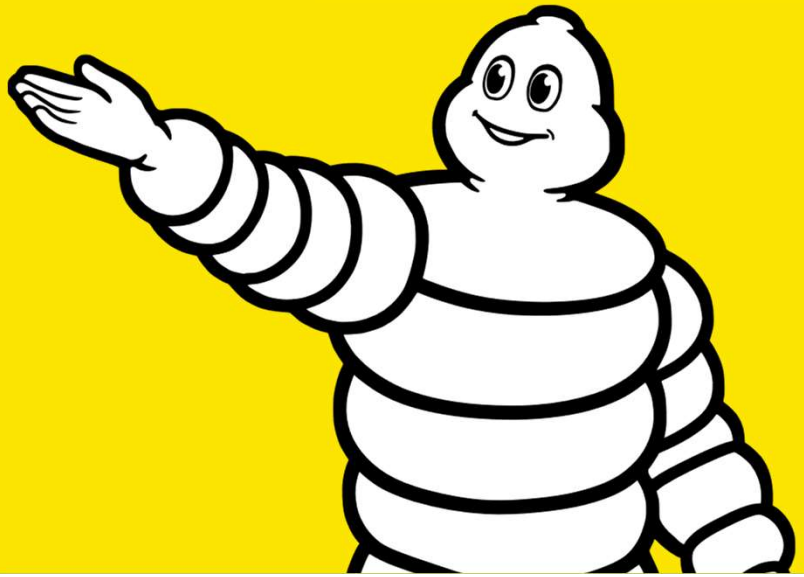
https://rfid.michelin.com

TIRE IDENTIFICATION AT THE SERVICE OF CIRCULAR ECONOMY



Jérôme BARRAND – MICHELIN
Arthur WAGNER – REGOM

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RFID IS A STRATEGIC ENABLER TO CONNECT TIRES TO A LARGER ECOSYSTEM AND BUILD DATA DRIVEN SERVICES

RAIN RFID

ISO 20909 / 20910
20911 / 20912

PASSIVE & AFFORDABLE
CAN BE READ THROUGHOUT LIFECYCLE
CAN BE READ WHILE MOVING / ROLLING

UNIQUE ID
SECURE & NORMED

FOUNDATION TO
ASSOCIATE TIRE DATA

MICHELIN IS WILLING TO FOSTER DIGITALIZATION OF THE TIRE INDUSTRY AND MARKET ADOPTION OF RFID AS A STANDARD

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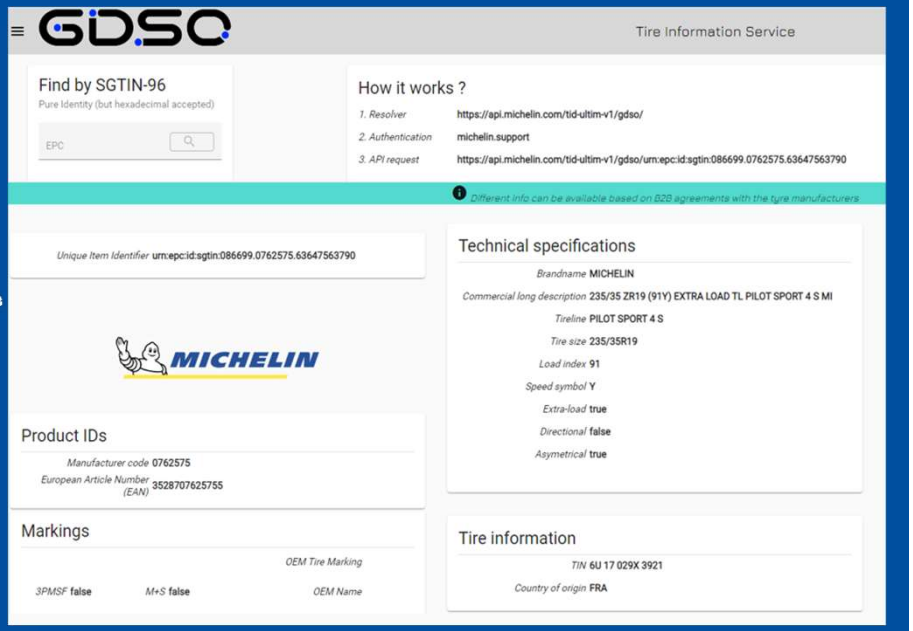
GDSO IS LAUNCHED UNLOCKING POTENTIALS TO LEVERAGE AND EXCHANGE DATA

STANDARDIZE. SHARE. SIMPLIFY.

OBJECTIVES: STANDARDIZE TIRE DATA AND MANAGE THE SERVICE TO RETRIEVE DATA FROM SEVERAL TIRE MANUFACTURERS BASED ON A UNIQUE ITEM IDENTIFIER (SGTIN96)

MEMBERS: MICHELIN, BRIDGESTONE, Continental, GOODYEAR, PIRELLI, Giti, PROMETEON, Sumitomo

ASSOCIATES: ETRTO The European Tyre and Rim Technical Organisation, JATMA JAPAN AUTOMOBILE TYRE MANUFACTURERS ASSOCIATION, U.S. TIRE MANUFACTURERS ASSOCIATION, TRAC



** Global Data Service Organisation for Tyres and Automotive Components*

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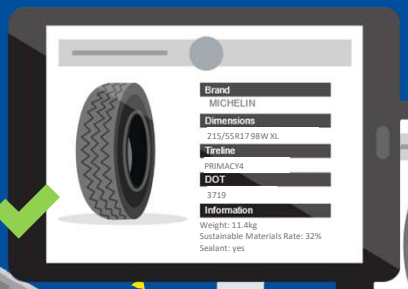
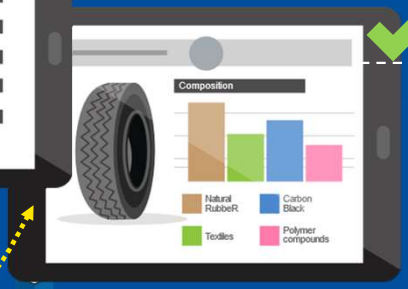
RFID WILL OPTIMIZE ELT* SORTING, IMPROVE CIRCULAR ECONOMY AND USAGE KNOWLEDGE

ESPR mandating a DIGITAL PRODUCT PASSPORT

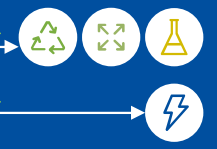
RETRIEVING TIRE INFORMATION (DIMENSION, SEALANT, TMS…)
With RFID

RETRIEVING TIRE COMPONENTS DATA
With RFID





Improve recycling and material recovery



Increase reuse and retread rates

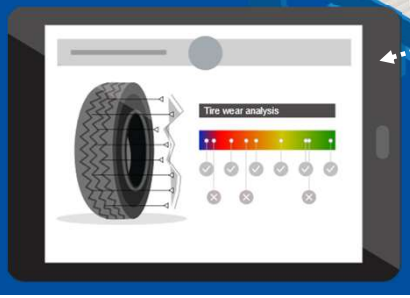
REUSE

RETREAD

RECYCLE

POC FROM 2022

REGOM
TYRE REUSE SOLUTIONS



PAIRING ELT INFO / TREAD DEPTH
With camera

COLLECT RECYCLING CERTIFICATE AND USAGE DATA

4R CIRCULAR ECONOMY

* *End of Life Tires*

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IN THE MEANTIME REGOM HAS DEVELOPED A VISION AI ANALYSIS SYSTEM TO START IMPROVING ELT SORTING

REGOM
TYRES REUSE SOLUTIONS

ACTIVITIES

- Design, manufacturing, and sale of sorting machines for ELT and linked software
- R&D of tire reuse solutions
- Promotion for reusable tires

OBJECTIVES

- Improve sorters' working conditions
- Refine & optimize valorization
- Adapt to tomorrow's market

5 years of R&D
+1.5M tires tested
Algorithm 100% internally developed

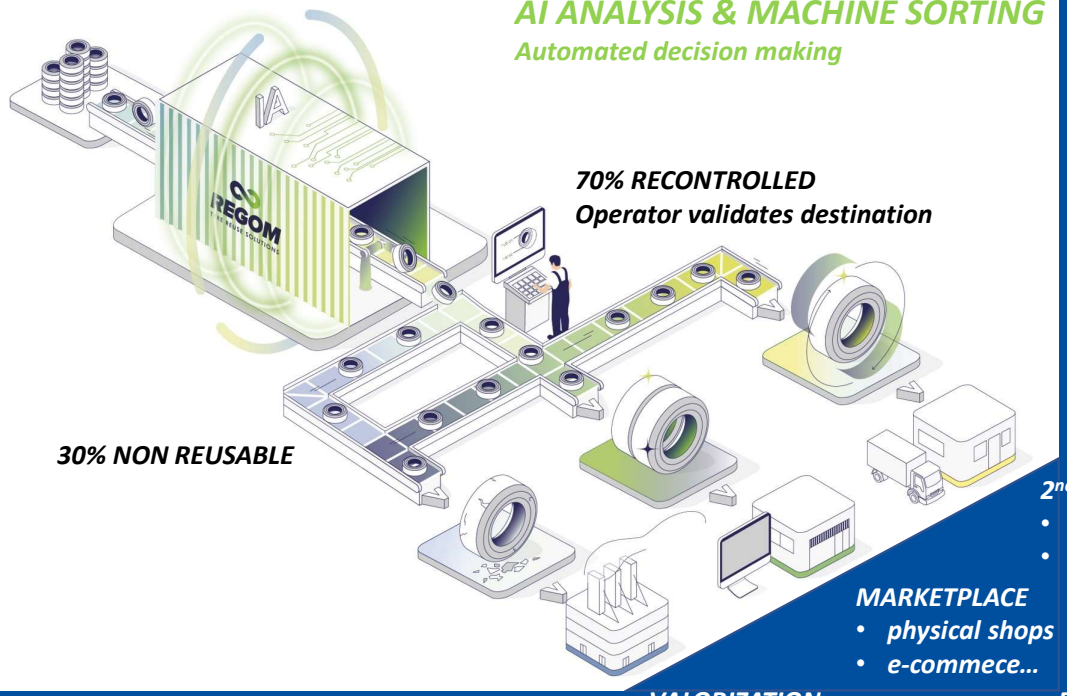
- ✓ *industrial speed rate: 1 tire every 3s*
- ✓ *800 tires analyzed per hour*

A.I. decision-making based on analysis and recognition of :

- ✓ *brand*
- ✓ *profile*
- ✓ *dimension*
- ✓ *remaining tread depth*

AI ANALYSIS & MACHINE SORTING

Automated decision making



70% RECONTROLLED
Operator validates destination

30% NON REUSABLE

2nd CHOICE MARKET
- ***Retreading***
- ***export and non-premium***

MARKETPLACE
- ***physical shops***
- ***e-commece…***

VALORIZATION
- ***Construction industry***
- ***Industry, energy***
- ***Material recovery***
- ***Black carbon***

DATABASE CENTER
- ***Calculation of valorization***
- ***Production tracking***
- ***Real-time destination setting***

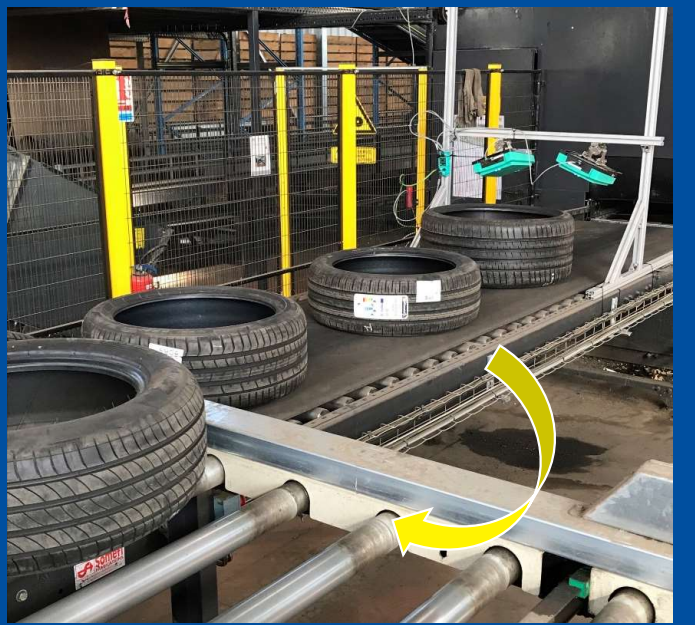
SORT YOUR TIRES TO MATCH THE RIGHT VALORIZATION OUTPUTS

- Reuse
  - ✓ online and offline sales
  - ✓ norms labels, quality controls
- Retreading
  - ✓ specific brands,
  - ✓ low remaining tread depth
- Material recovery
  - ✓ after shredding and granulation
- Pyrolysis
- Micronization
- Devulcanization

REGOM
TYRE REUSE SOLUTIONS
REGOM, une société du groupe TC

RFID POC LAUNCHED ON TC58 ELT SORTING LINE

- RFID gate installed in November 2022 in addition to current REGOM AI analysis / sorting machine on conveyor
- Demonstrate RFID system capabilities on an ELT sorting line
  - ✓ environment integration
  - ✓ tire diversity: already > 80 MICHELIN references & 10 competitors' ones
  - ✓ real time connection
  - ✓ …



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CONCLUSIONS

Tire identification enables to optimize ELT sorting and improve value

REGOM solution based on vision AI analysis system already enables to automatize pre-sorting

Deployment of RFID tags in tires and RFID systems by ELT collectors will further unlock sorting potentials and support the development of new material recovery streams

Access to data linked to materials will certainly require an independent governance

A regulatory framework could ease the adoption within the tire recycling industry