



**100%  
SUSTAINABLE  
MATERIALS:  
UTOPIA OR  
REALITY?**



**MEDIA DAY**

**[November 25, 2021]**

**ERIC VINESSE,**

Research and Development Director,  
Member of the Group's Executive  
Committee



**"TOWARDS A 100% SUSTAINABLE TIRE",**  
*AT EVERY STAGE IN ITS LIFECYCLE*



**MEDIA DAY**

[November 25, 2021]



**HIGH TECHNOLOGY**  
THE TIRE, A COMPLEX OBJECT

**200 INGREDIENTS**  
WITH VERY SPECIFIC FUNCTIONS



**MEDIA DAY**

[November 25, 2021]



# ***THE TIRE MUST MEET ANTAGONISTIC REQUIREMENTS AND BECOME MORE SUSTAINABLE***

***CARRY***  
the load and dynamic  
movement

***STEER***  
the vehicle

***TRANSMIT*** the  
braking or acceleration efforts  
to the ground

*LESS MATERIALS*

*GREATER  
SAFETY*

*LESS FUEL*

*MORE MILEAGE*



**MEDIA DAY**

[November 25, 2021]



# **TOWARDS 100% SUSTAINABLE MATERIALS IN TIRES: AN UNPRECEDENTED TECHNOLOGICAL GOAL**

2021



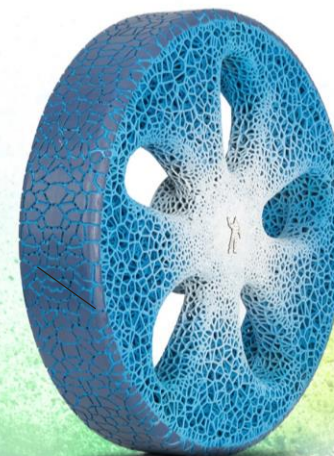
**28%**

2030



**40%**

2050



**100%**

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# OUR 3 ASSETS FOR SUCCESS

**1/3** OUR UNIQUE KNOWLEDGE OF MATERIALS HAS REGULARLY GENERATED BREAKTHROUGH INNOVATIONS

THE GREEN TIRE  
**1992**

THE RADIAL TIRE  
**1946**



MICHELIN CROSSCLIMATE  
**2015**



MICHELIN UPTIS  
**2019**



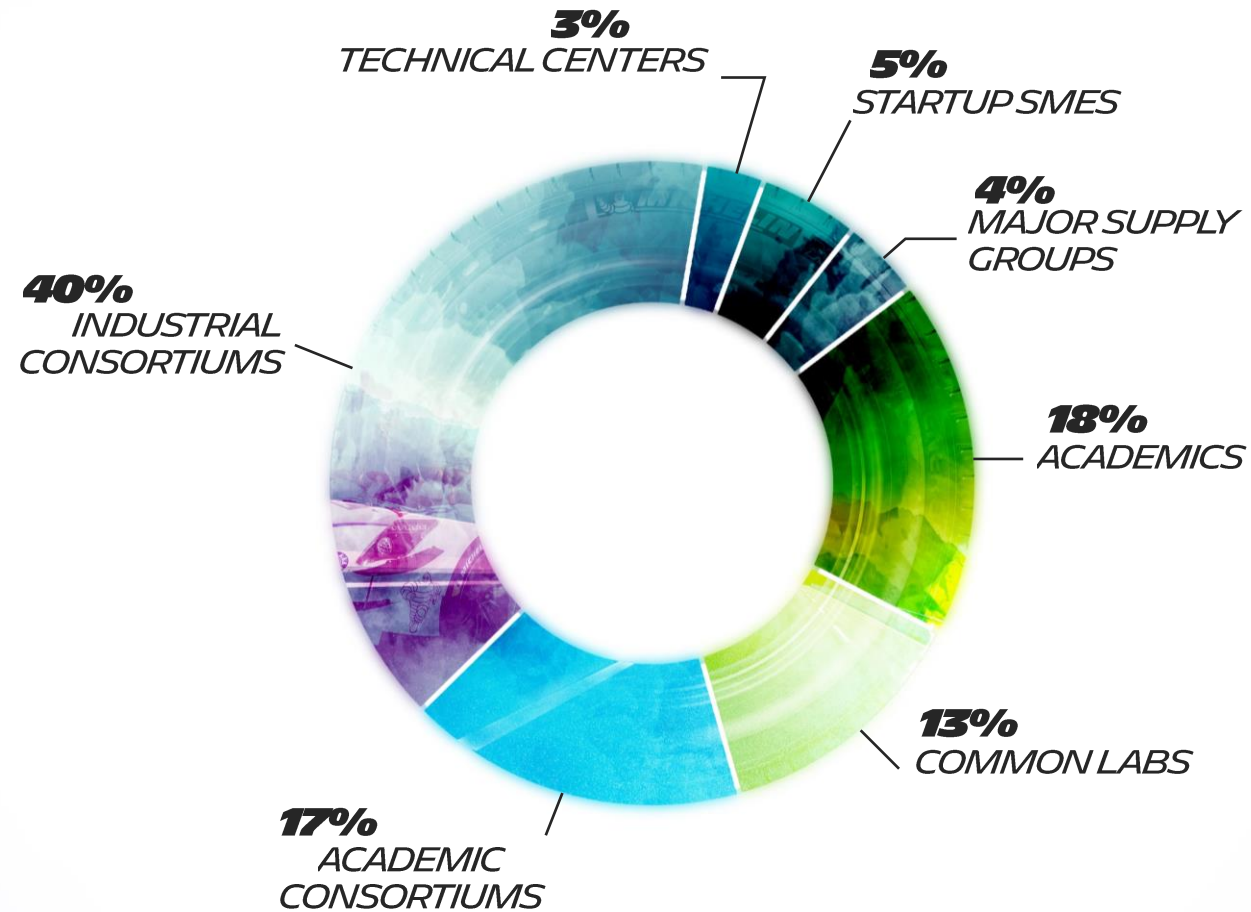
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# OUR 3 ASSETS FOR SUCCESS

**2/3** R&D IN OPEN-INNOVATION AND PARTNERSHIPS



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# OUR 3 ASSETS FOR SUCCESS

**3/3** SEVERAL PROJECTS IN THE PRE-INDUSTRIALIZATION PHASE



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# TAILOR-MADE TECHNOLOGIES



ENZYMES



PYROLYSIS

PYROWAVE



MICROWAVE



CATALYSIS

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# **AIMS THAT ARE ALREADY REALITY**

*MICHELIN MOTORSPORT, INNOVATION LABORATORY*

**40%-33%**  
**SUSTAINABLE**  
**MATERIALS**



**46%**  
**SUSTAINABLE**  
**MATERIALS**

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