

# THE SMART TIRE COMPANY





**THINK YOU HATE  
FLAT TIRES?**

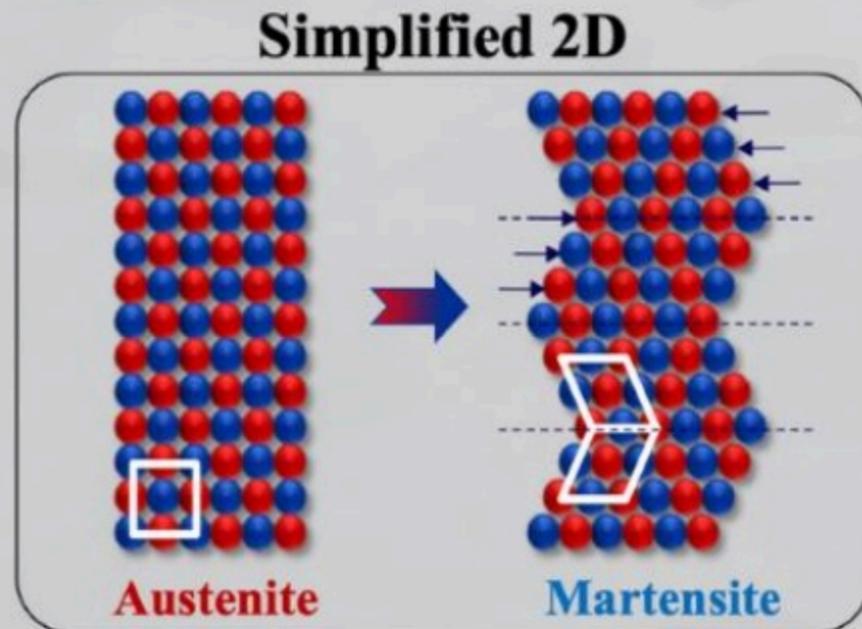
**NASA REALLY  
HATES THEM.**

---

**(ON MARS, THERE ARE NO  
SPARES FOR 94 MILLION  
MILES)**

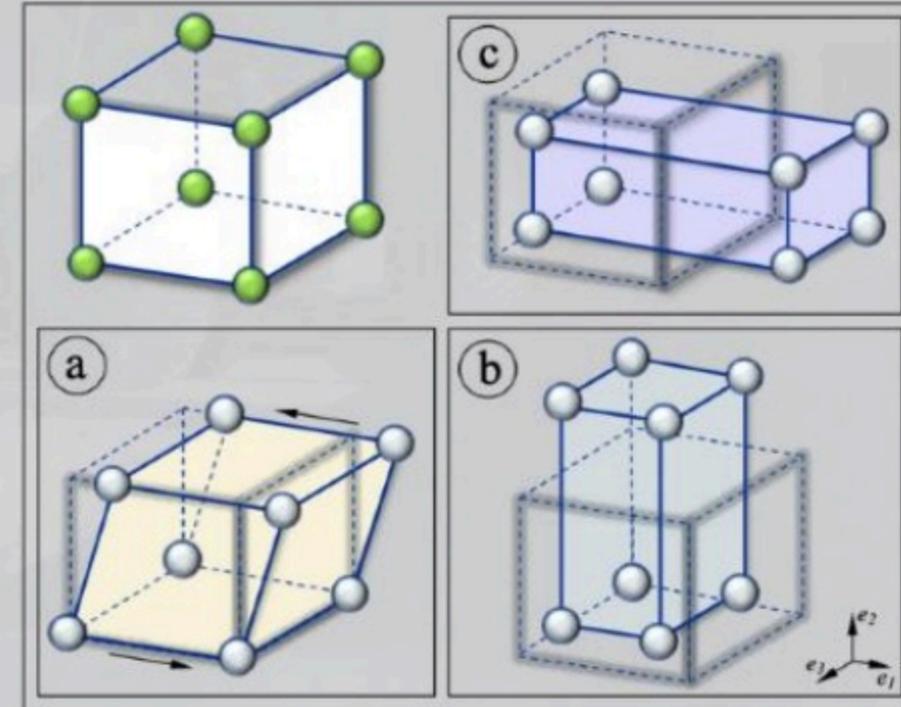
# Shape Memory Alloys: An Introduction

- ❑ Alloys that have a “memory.” These materials have the ability to remember and recover their original shapes with load or temperature.
- ❑ SMAs exhibit a solid-to-solid, reversible phase transformation capable of storing **over 30x** the deformation that can be done in an **elastic** bond stretch.



- ❑ **How?**
  - ✓ Bain strain → (lattice deformation)
  - ✓ Lattice invariant shear → (accommodation)
  - ✓ **Inelastic** deformation (transient twinning) → **REVERSIBLE**

## Variant selection



## Microstructure



Courtesy of A. Garg

# TIRE PROBLEMS

## 1 FLAT TIRES

200M+ per year are a safety hazard and major inconvenience

## 2 HIGH MAINTENANCE

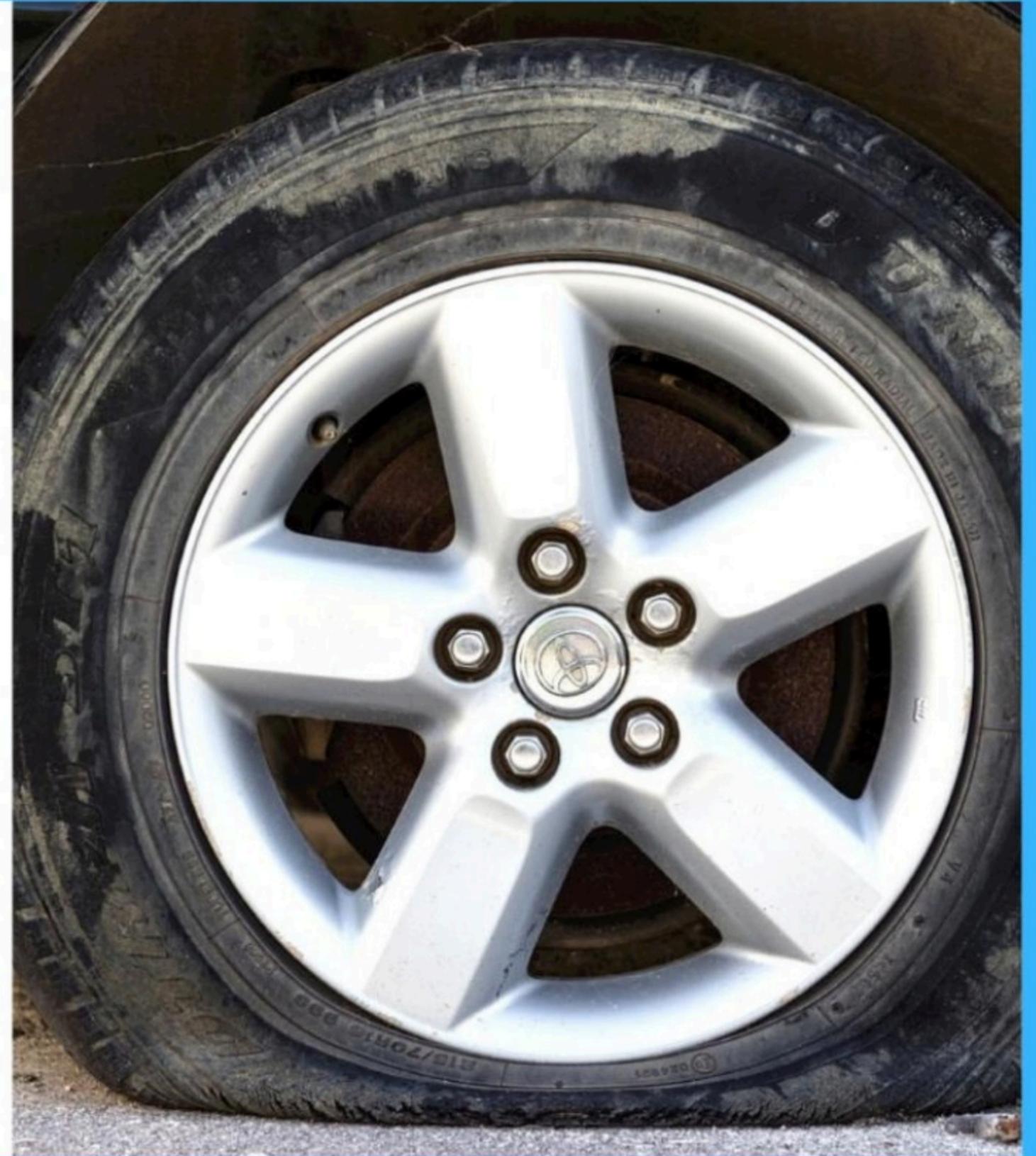
Continuous air pressure monitoring

## 3 ECO-UNFRIENDLY

50B lbs of rubber tire waste a year is overflowing landfills

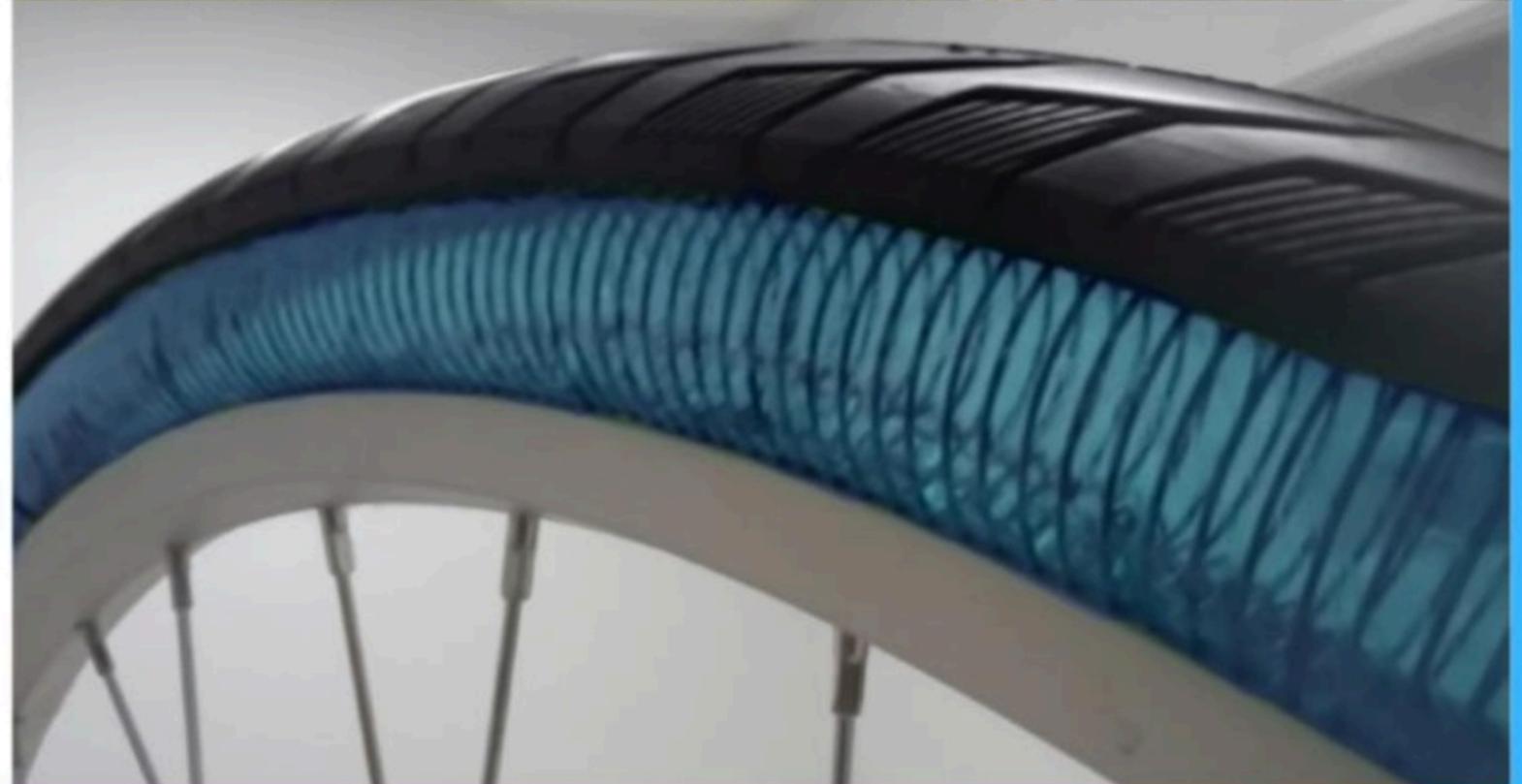
## 4 TEMPORARY FIXES

Run-flats provide expensive “limp home” capability for just a few miles, then have to be replaced



# SMART SOLUTION

- 1 NEVER FLAT, AIRLESS TIRE**  
Made from a space-age material that is elastic like rubber, but strong like titanium
- 2 MARS ROVER TOUGH**  
NASA-trusted tech, one tire for the life of the vehicle
- 3 SMOOTH & LIGHTWEIGHT**  
Pneumatic feel with high-performance, durability and low rolling resistance
- 4 CONSUMER APPEAL**  
Multiple colors and a see-through design that make other tires look boring



# MARKET OPPORTUNITY

## TWO WHEEL VEHICLES



**\$19.4B**

TWO WHEEL MARKET

**10%**

CAGR

**HIGHEST  
POTENTIAL  
MARGINS**

# SMART PROTOTYPES

AUTOMOTIVE



CYCLING



INTEGRATED RUBBER



AEROSPACE



## CLEAN TIRE TECH



### REDUCE WASTE

50B lbs of tire waste comes from end-of-life tires. Longer lasting, lower rubber content, means less waste.

### RETREAD-ABLE

Only the trucking industry focuses on retreads; all of our structural tires can be retreaded and reused.

### REUSE RUBBER

Cleaner, more sustainable sources of rubber and carbon black further reduce environmental impact

### INCREASE MPG

Low tire pressure reduces fuel economy across automotive & trucking, primary consumers of fossil fuels.

## TIMELINE (5-YEAR)

**March 2021**

SMART Tire Announced

**Q1/Q2 2022**

Lunar Tire  
Development

**2023**

Growth (2 Wheel Market)  
Automotive & Motorcycle R&D  
eVTOL Tire Development

**2025**

Advanced Prototypes:  
Automotive, Trucking, Aircraft

**June 2021**

NASA Space Act Agreement  
Begins  
SMART Innovation Lab Opens  
in Akron, Ohio

**Late 2022**

METL Bike & Scooter Tire  
Product Launch

**2024**

Truck & Aircraft R&D  
Military Vehicles  
METL Product Launch II

**2026**

Road Testing  
Aircraft Testing

# SMART TEAM

30+ YEARS STARTUP EXPERIENCE

30+ YEARS @ GOODYEAR & NASA

3X PATENTS & 3X PENDING



**Earl Cole**

CEO/Founder,  
UWashington, USC,  
Business



**Brian Yennie**

CTO/Founder,  
Dartmouth, Software  
Engineering



**Jim Benzing**

Principal Engineer,  
Goodyear, NASA



**William Farah**

General Counsel  
SOS Ventures



**Felt Bicycles**

Strategic partner



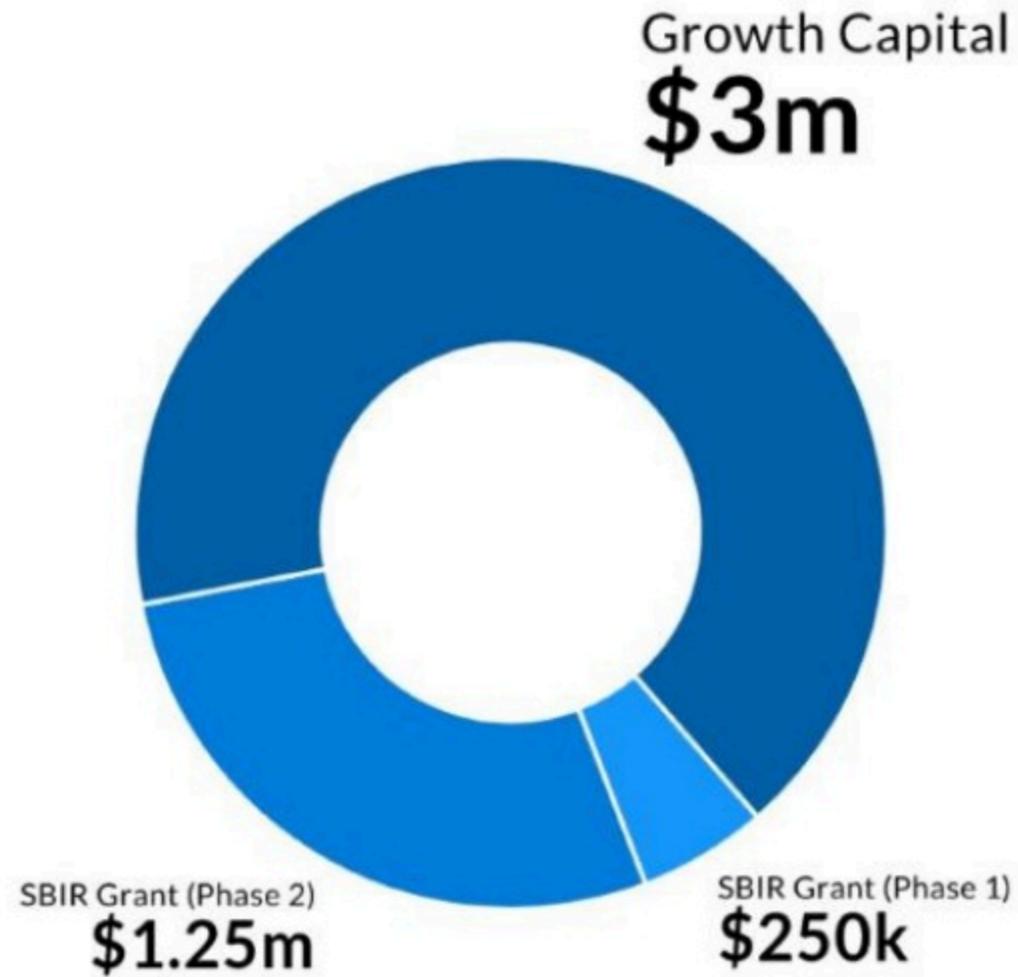
**Spin (Ford Mobility)**

Strategic partner

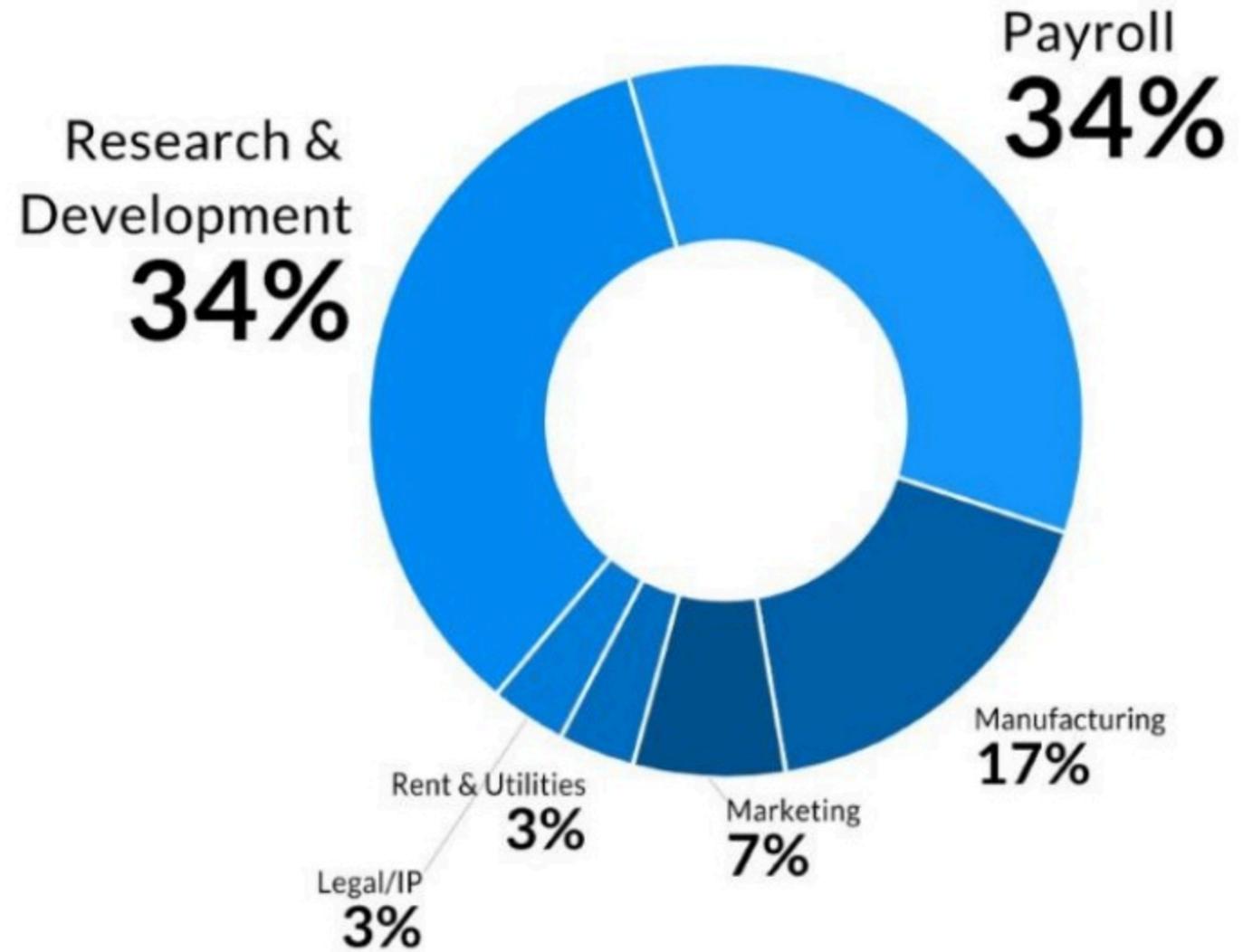
THE  
**SMART**  
TIRE COMPANY



## Funding Sources



## Use of Funds



## KEY ACCOMPLISHMENTS

- **NASA Startup Studio**

Won 1st place in FedTech NASA program, signed Space Act Agreement with NASA

- **Partners**

Established early partnerships with industry leaders in cycling and micro-mobility

- **Research**

New proprietary designs result in 3x pending patents, plus trade secrets

- **Prototypes**

Advanced prototypes of new scooter, bicycle and lunar tires

- **Waiting List**

Over 4,000 people on our waiting list for METL™ bike tires

- **SMART Innovation Lab**

Opened 5000 sq ft production facility in Akron, Ohio, to build prototypes and run experiments

ONE MORE THING





**“THIS TECHNOLOGY HAS BEEN DEMONSTRATED ON A JEEP WHERE IT PERFORMED EXCEPTIONALLY...**

**THESE UNIQUE MATERIALS LOOK EXTREMELY PROMISING IN REVOLUTIONIZING THE ENTIRE TERRESTRIAL TIRE INDUSTRY.”**

**MATERIALS SCIENTIST, NASA MARS ROVER TEAM**