



# Pedaling India's Growth

**Cycling into the future**

**June 2021**



# Foreword

It has been more than two centuries since the first bicycle was invented by Baron Karl von Drais of Baden, Germany. The purpose behind this breakthrough was the hunt for an alternative mode of transport as horses starved to death post volcano eruption. The primary reasons for riding bicycle these days is the increased focus on health, eco-friendly ride, sports enthusiast, affordability etc. The purpose may have changed over time yet the constant evolution of bicycle from wooden bicycle in 19th century to foldable bicycle in 21st century is a testimony to the fact that this interests people and is a preferred mode of transport for many.

The global industry has undergone a fast pace makeover in the last few years. Government in various developed countries are aggressively rolling out the incentives and infrastructure necessary to support bicycle commutation. Recent technological advancements in mobile app development and Global Positioning System (GPS) resulted in app-based dockless bicycle-sharing systems that are expected to fuel the demand in future.

With the objective of making India globally competitive, attracting investments, ensuring efficiencies, optimizing cost through economies of scale, boosting exports and making India an integral

part of the global supply chain; it's a high time that India starts local manufacturing of components ('Vocal for local') in tandem with diversification of supply chain to reduce its dependence on imports which is in line with its vision of Atmanirbhar Bharat.

Bicycle can play a big role in eradicating poverty and creating more employment in India. Government's support is essential in achieving the above objectives and taking this sector to unprecedented levels.

KPMG in India, AICMA and FICCI are also working for SCALE Committee towards unleashing the true potential of bicycle sector in India and making India a World

Class Bicycle Hub.

This report suggests an integrated blueprint emphasizing the demand and supply side measures. We are hopeful that the findings and broad recommendations of the report will create desired interest and involvement of all stakeholders. We are sanguine that this systematic transformation will be navigated in time bound manner towards making Indian Bicycle sector truly Atmanirbhar.

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# Cycling into the future



Safe Cycling Infrastructure



Centre of Excellence - R&D & Training



Thrust on Indigenization & Exports

Rise in Gig Economy Jobs

World Class Bicycle Hub



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**Global Opportunity**



**Why Bicycles for India?**



**Domestic & Export  
Market Potential**



**Challenges and the  
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**Vision to be a World Class  
Bicycle Hub – Be Globally  
Scalable & Atmanirbhar**



# Bicycle - Product of National importance (8Es) & Sustainable Future

## Energy

- Indian imports of petro fuels are unsustainable in the long run
- Bicycle uses pedal energy and is a sustainable mode of transport



## Evergreen

- Every cycle on road reduces air and noise pollution at local level & reduces carbon emission at National level



## Endurance

- Bicycles help improve physical and mental health of an individual



## Empowerment

- Bicycles constitute a silent parallel economy in terms of job creation
- Redresses poverty; gender inequality; school enrollment & social isolation & improves ease of living



## Efficiency

- Most bicycles are elementary in assembling, easy to operate & maintain, efficient & flexible / reliable mode of transport



## Equity

- Increasing Government support, rise in bicycle ownership, safe lanes and erasing poor man's tag on bicycle shall ensure equity in mobility/ connectivity



## Endangerment

- Bicycling is increasingly being preferred as a safe mode of transport enabling social distancing during COVID



## Economics

- TERI report estimates that if bicycles were to substituted with the two- and four-wheelers used for short-distance trips, it can result in an annual benefit of INR 1.8 trillion



Cycling delivers on the **11 out of 17 SDGs**; it shifts towards a better economy, society and planet for all

Source: Industry Interactions, AICMA, TERI Cycling Report (2019)



# THE GLOBAL STORY



# Global Bicycle Market - Shifting to high gear

**1** Global bicycle market pegged at **USD 58 billion** (FY2020)

**2** Structural change in cycling trends post-pandemic; increasing ridership and rising penetration has led to a '**Global Bicycle Boom**'

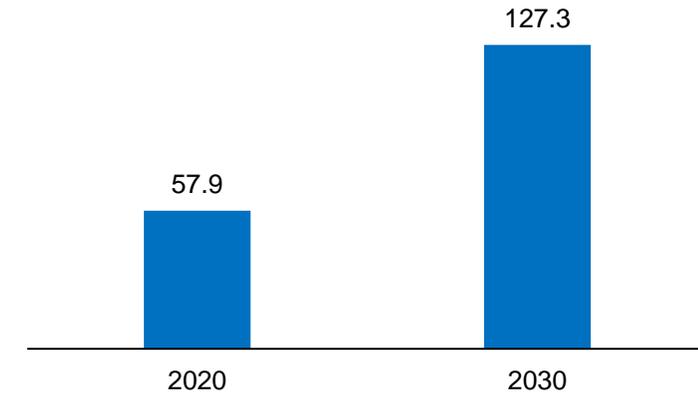
**3** Global bicycle boom to continue due to **supply-demand imbalance**

**4** Robust end-demand suggest a **healthy order outlook** for bike manufacturers. Order visibility extends beyond 2022 for some large players; **longer component lead-time** across its supply chain

**5** Inventory at historical lows, **Peak Demand** has led to high capacity utilization of select key players

**6** Global manufacturers plan to **outsource production** of regular bikes to South-East Asia in 2022. **Big opportunity for India**

## Estimated Global Market Size (USD billion)



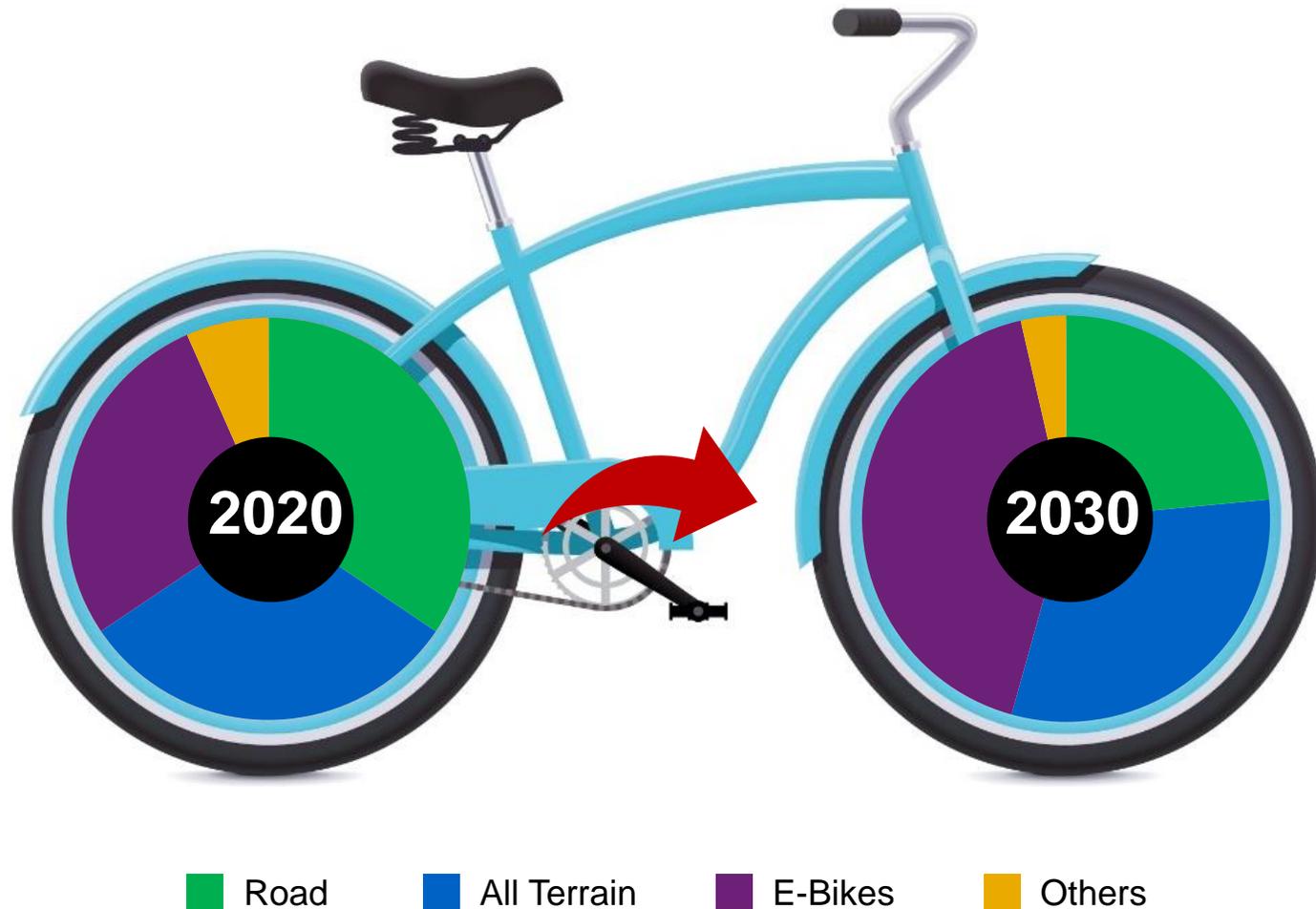
Source: Industry Interactions, KPMG in India Estimates

**140 million bicycles** per annum produced globally

- China – world's largest producer
- India - 2<sup>nd</sup> largest producer
- India has one of the lowest bicycle ownerships at 9%

Manufacturers of bikes and related components are reorganizing global supply chains for getting ready to cater to the rising demand.

# Global Segments - E-bikes transforming mobility



Source: Industry Interactions, KPMG in India Estimates

Production shift to second generation materials - Al alloy, Carbon fiber and Titanium bicycles etc.

Technological transformation: Making bicycling faster, easier and safer

Change in user preference toward the adoption of zero-emission vehicle

Health and fitness conscious urban dwellers are driving demand for premium (All Terrain) bikes

Global demand for E-bikes and components to transform mobility in the next 10 years

Electrification: "My second car is an e-bike" concept picking up

E-cargo bikes emerging as preferred options for last mile connectivity

# Trade Dynamics in Overall Bicycle Market

\$20 Bn  
Global Market  
in 2019



## Top Importers (Imports in 2019)

1. Germany
2. USA
3. Netherlands
4. Taiwan
5. Japan

## Top Exporters (Exports in 2019)

1. China
2. Taiwan
3. Germany
4. Japan
5. Netherlands

## India's footprint in Bicycles, Parts & Accessories



**0.4%** share in  
Global Imports (2019)

**0.5%** share in  
Global Exports (2019)



**0.6%** share in  
Global Imports (2019)

**2.3%** share in  
Global Exports (2019)

## India's Bicycle Trade Dynamics in 2019

### India's Top Export Destinations

1. Bangladesh
2. UAE
3. Nepal
4. Mexico
5. Burkina Faso

### India's Top Import Sources

1. China
2. Sri Lanka
3. Malaysia
4. Taiwan
5. Bangladesh

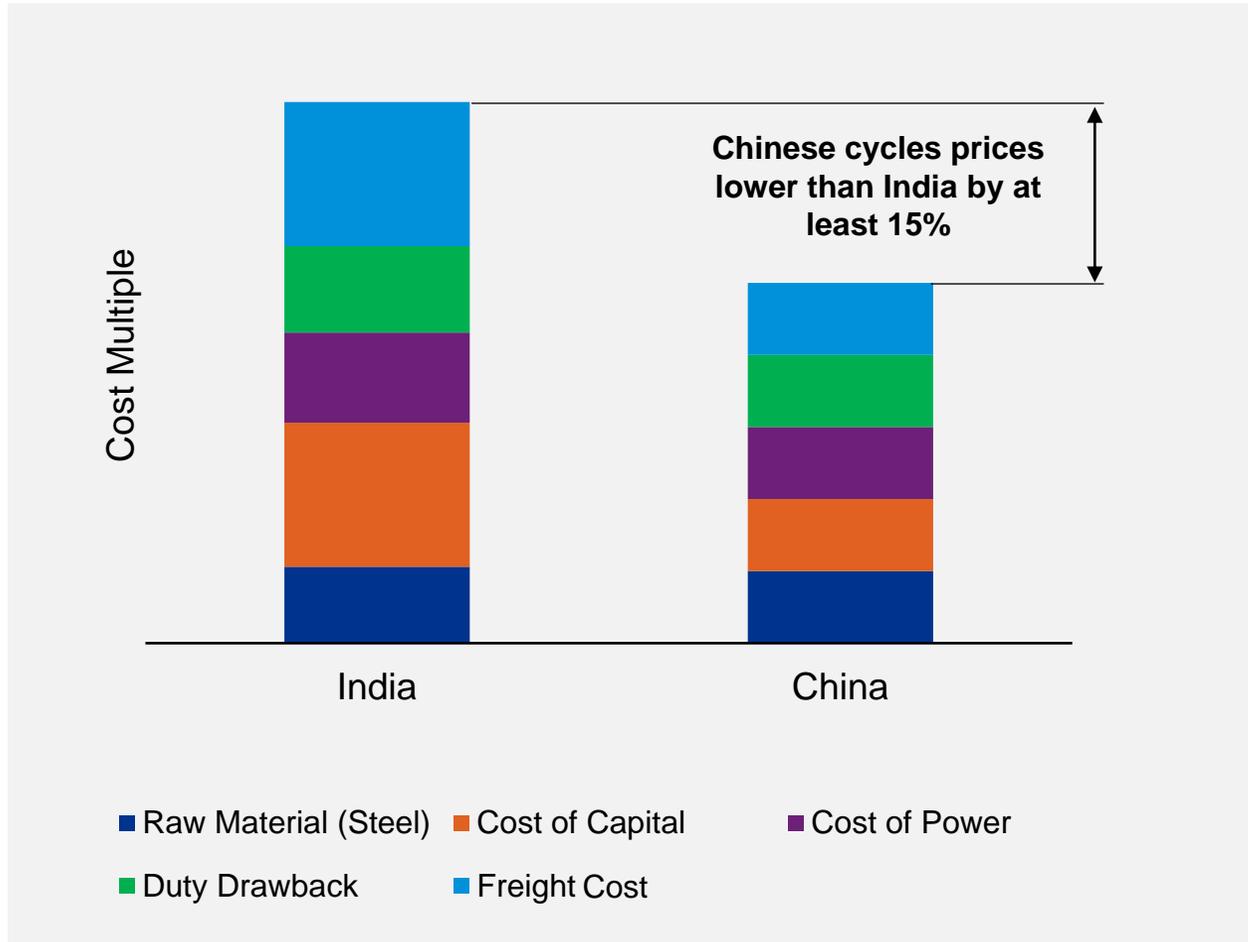
India's Total Exports  
**\$304.1 Mn**

India's Total Imports  
**\$105.6 Mn**

\*Analysis exclusive of e-bikes  
Source: UN Comtrade; Trade Map Database

# India's comparison with the world's largest exporter

## Raw Materials contribute to 70 – 80% of total cost of bicycle



Parameter	India	China
<b>Exporting Nations</b>	West Asia, Africa, US and Latin America	World's largest exporter and exports to countries including US, EU, India etc.
<b>Technology Level</b>	<ul style="list-style-type: none"> <li>1<sup>st</sup> generation: Steel</li> <li>Imports premium parts</li> <li>Manual Welding, manual assembly, conventional painting &amp; basic testing Facilities</li> </ul>	<ul style="list-style-type: none"> <li>2<sup>nd</sup> to 4<sup>th</sup> generation (Al alloy, carbon fibre &amp; titanium) materials</li> <li>Makes Premium parts (Gears and Transmission parts; Alloy parts; Disc brake; Coaster hub; One piece crank)</li> <li>Robot Based welding, automated assembly, high GR Painting &amp; Exhaustive testing</li> <li>Diversifying in PBS and E-Passenger / cargo</li> </ul>

Source; Industry Interactions, AICMA, KPMG in India Analysis



# INDIA SNAPSHOT



# Evolution of bicycle sector in India



**Key Statistics**

- 2<sup>nd</sup>** Largest Producer in the world
- 4000+** MSMEs in Ludhiana
- 100+** International Bicycle Brands in India
- 2.2 Cr** Bicycles manufactured in India per year
- 10 Lakh+** People employed in this sector
- 91%** Penetration Potential

Source: Industry Interactions, AICMA



# An informal micro logistics and supply chain system thrives in India



**A. Bicycle Uses:**  
Commuting, Utility, Services, Cargo, Military, Touring, Fitness, Competition & fun

**B. Illustrative Example:**

Immense possibilities for **Self - employment** in India (Opportunities for financial empowerment) using Cargo pedal/ E- Bicycles, with purpose specific modular designs of Cargo.



**Bicycles constitutes parallel silent economy**



# Economic Benefits



Cars on Road	Two Wheelers on Road	Cycles on Road	Walk to work up to 10 Kms
43 Mn	235 Mn	110 Mn	200 Mn

Vehicle Type	Year 2000	Year 2020	Cumulative	%CAGR
Motorcycle	4 Mn	27 Mn	256 Mn	10%
Bicycle	10 Mn	20 Mn	302 Mn	3.5%

Since the growth in bicycles did not match the growth in motorcycles, **India lost the opportunity to provide livelihoods, education & recreation to 338 million additional lives through bicycles** & redress negative impacts of fuel-based vehicles.

### Assumption:

50% substitution from 2 Wheelers and 4 Wheelers to Bicycles within the distance of 8 Kms

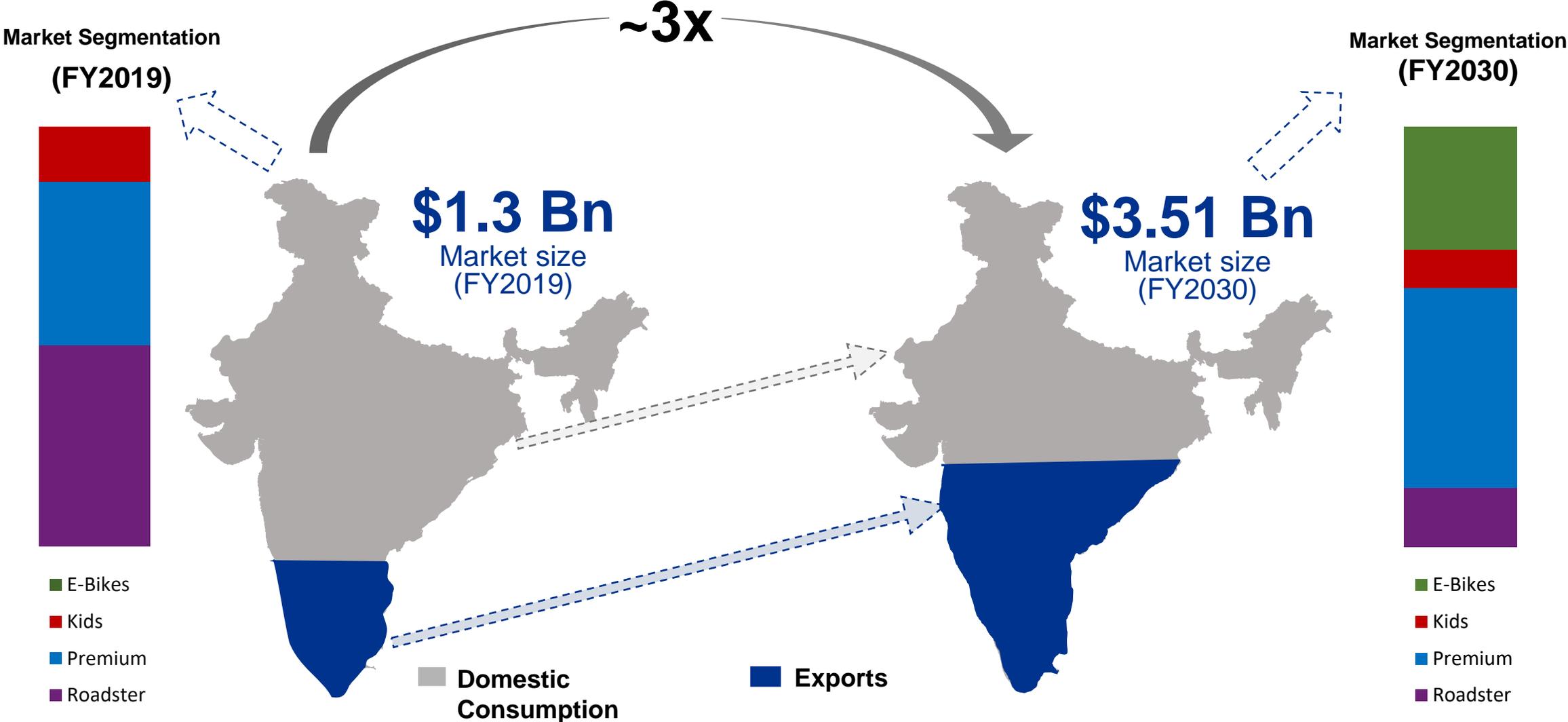
S.NO.	Benefit	Quantum
1	Health benefits of fitness	INR1435 billion
2	Health benefit of reduced Air Pollution	INR241 billion
3	Travel Time Saving (Unskilled labors)	INR112 billion
4	Personal Fuel Savings	INR27 billion
<b>Total Annual Benefit</b>		<b>INR1.8 trillion</b>
<b>1% of India's annual GDP in FY 2019</b>		

## Socio-Economic Benefits

- Increased earnings of each poor household
- Validated tool to address employment needs of BPL population
- Potential to increase enrollment of school students
- Increase in additional visits of houses by ASHA Workers from 27 lac trips / month to 54 lacs per month
- Population of India = 1.3 billion; 91% Penetration Potential

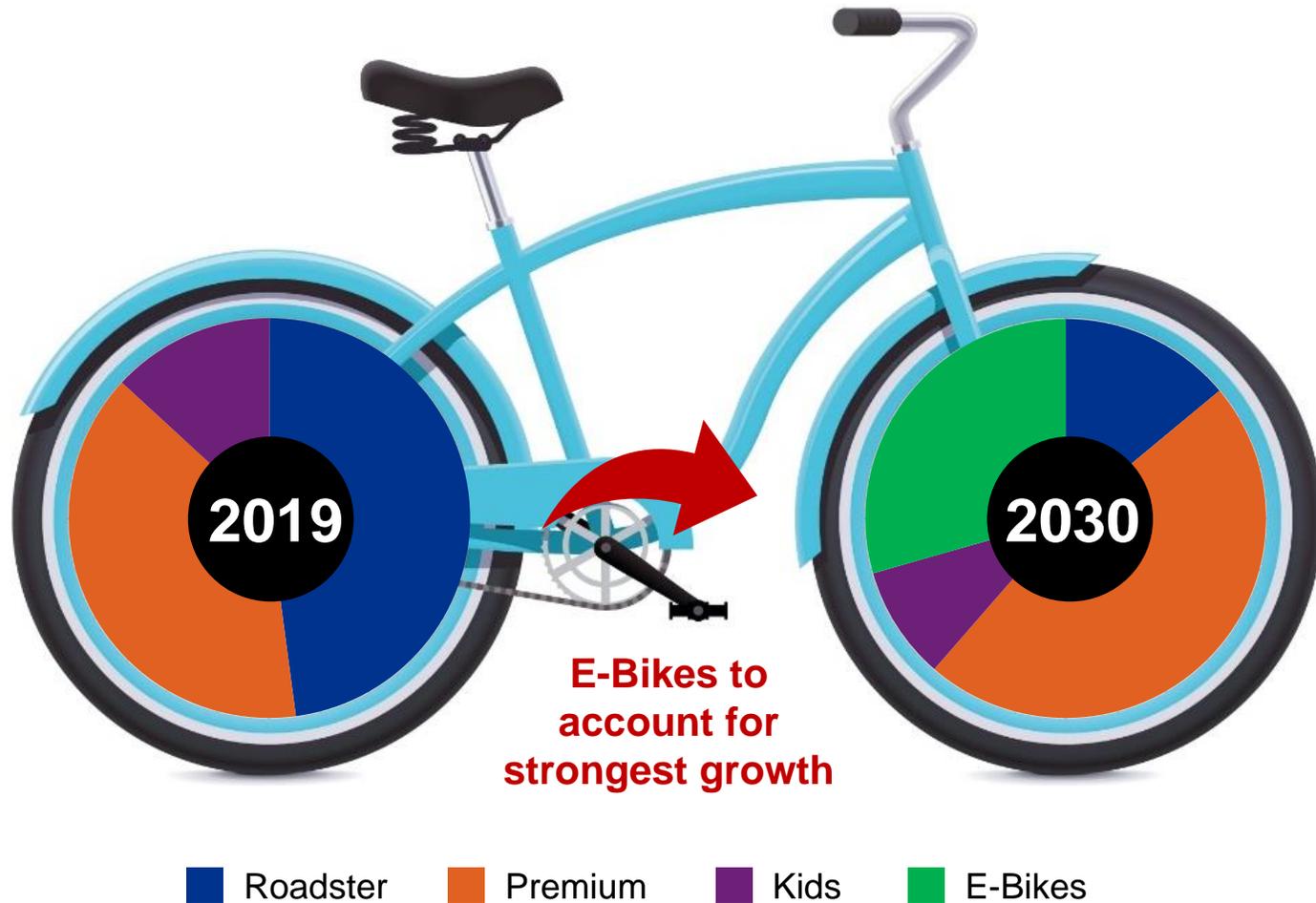
Source: Industry Interactions, AICMA, TERI Cycling Report (2019)

# Potential to increase market size by 3 times in the next 10 years



Source: Industry Interactions, AICMA, KPMG in India Analysis

# Segmental Trends



Source: Industry Interactions, AICMA, KPMG in India Estimates

## Roadsters

- Primarily driven by institutional sales and lower income group's affordability
- A shift from the roadster category to premium segments is underway, supported by healthier lifestyles and improving prosperity

## Premium Bikes

- Premium bicycle segment comprises of hybrid, racing, adventure, mountain bikes etc.
- Made of specialty materials including Aluminium alloy, C-fibre and Titanium
- The future growth shall be driven by an increasing awareness towards health, urban aspirations, environmental consciousness, safe cycle infrastructure, low penetration in India and an increased inclination of people to buy premium bikes

## Kids Bikes

- Shall be driven by leisure and COVID induced in-house physical activities

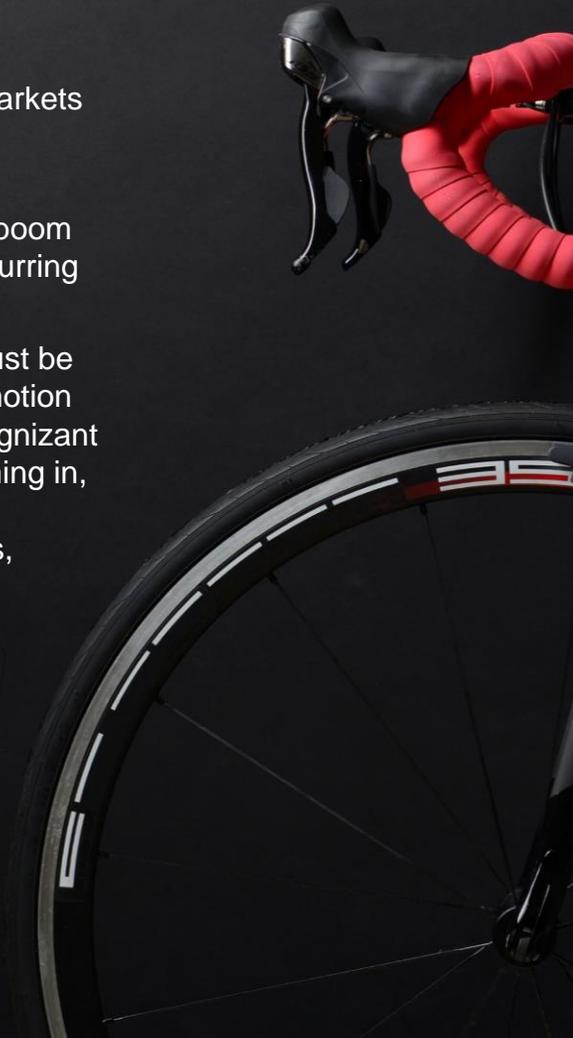
## E-Bikes

- Growth shall be driven by global demand for niche/ smart product and innovation. Being a hybrid solution of motor and pedal power and an increased inclination of people to buy e-bikes shall further drive its growth

# Electric Mobility Revolution

## Electric Mobility Revolution - Sustainable Transformation

- Large demand for E-bicycles particularly for the western markets are being encouraged by government policies
- India can cater to this global boom aided by export incentives spurring investment
- The local demand in India must be spurred by Government promotion as people becoming more cognizant of brands, global players coming in, technological changes, environmental consciousness, Health Benefits, Covid19 etc.



## Socio-Economic benefits

Compared to other electric vehicles, e-bicycles have the following advantages

### No Range Anxiety

Pedals are present to assist

### Health and Mobility

Promotes cycling while not using battery power

### Affordability

Most affordable E-Mobility solution

### Ride without Power

Possible with Pedaling

### Traffic Congestion

Quick commute & avoid traffic

### Job Creation

Can be readily used as income-generating asset for vocations like milk vending, courier, food delivery etc.

### Age Group

No age limit, serving kids segment preventing illegal riding

### Low Operational Cost

Running cost for electric bicycles is about INR 10 for 70 Km whereas for petrol it could be anywhere from INR 80 – 110

### No Charging Infrastructure Required

Can be recharged at home and work-place

### Reducing Carbon Footprints

No Pollution



# INDIA

## 2030



# Indian Bicycle Industry - Vision 2030

**PEDAL** your way to health and fortune



Pedaling  
Infrastructure  
& Public Bike  
Sharing

Electric &  
Premium  
Bikes

Delivery  
Bikes  
(Last Mile  
Connectivity)

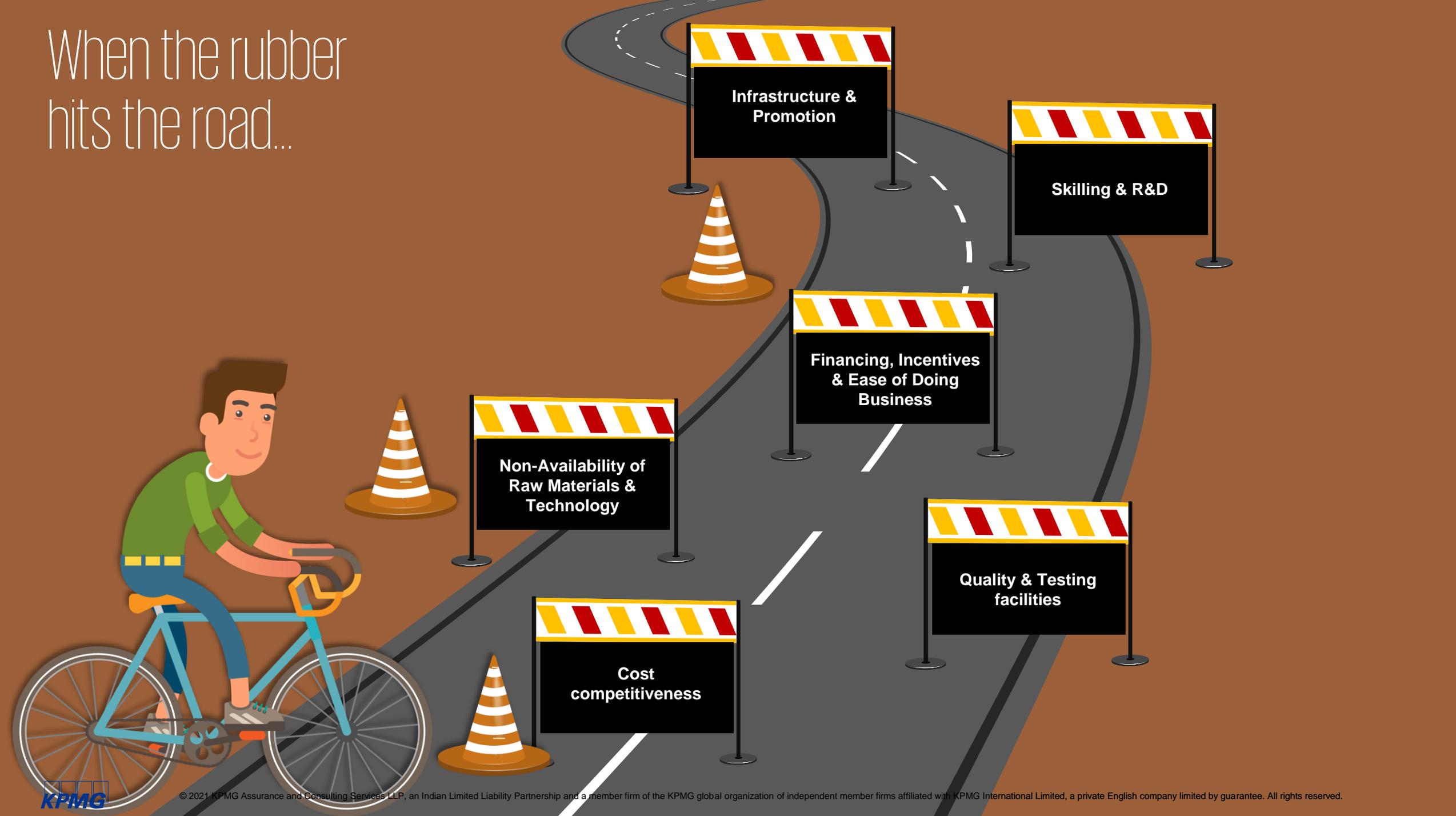
Affordable  
Bikes

Lifestyle  
& Fitness



- To make Indian Bicycle Industry 'Atmanirbhar' - domestically sustainable and globally scalable
- To emerge as a global leader in design, engineering & manufacturing of bicycles
- To develop lighter, smarter, value added, safe and faster premium and E-bicycles
- To empower the under-privileged section of society to be able to own cycles
- To increase the Indian Annual Bicycle Exports
- To generate more jobs within the bicycle industry
- To create a global image for attracting FDI in the Indian Bicycle Industry and to increase visibility in the global industry at large

When the rubber hits the road...



# Achieving Vision 2030: The Way Forward

Provide impetus to industry through **institutional sales** i.e. free distribution to students, underprivileged, health & unorganized workers

**Soft Loans** to cyclists making their purchase affordable

Separate, safe and seamless **Cycling Infrastructure** to promote the culture of green environment

**Mandatory Standards** to ensure safety of cyclists and to meet desired quality for exports

Create **World Class Bicycle Hub** - reduce cost of manufacturing by incentivizing localization (PLI, JVs with global brands, Capital Subsidy, PMP, TUF)\*

Prioritize **FTA\* negotiations** with strategic markets and reduction in duty for key imported components

Incentives from **FAME subsidy** to purchasers to boost demand of e-bicycles

**Centre of Excellence (Common Facilities)** for improving process, technology, productivity & quality



**Turbo-charging Domestic Demand**

**Strengthening Supply to become domestically sustainable and globally scalable**

\*PLI – Production Linked Incentive, JVs – Joint Ventures, PMP – Phased Manufacturing Programme, TUF – Technology Upgradation Fund, FTA – Free Trade Agreement

# Roadmap

- **Policy Reforms** (PMP, PLI, TUF, Material Bank, BIS)
- Focus on R&D, Innovation and safe cycling infrastructure

- Migrating to mandatory standards
- **JVs with global component vendors**
- Rise in institutional sales of roadsters **Earning Phase**

- Premium Institutes such as IITs, NID etc. offer specialized courses on bicycles
- Perception shift to premium & e-bicycles as a substitute to a second car

- India is a recognized global cycle hub
- Among the top countries in e-bikes. Recognized for its quality bicycles in developed nations



2021



2022



2023



- Surge in e-bike sharing – aggregators/ Start Ups coming in
- **New bicycle clusters**

2027



2029



2030

- T2 cities have a safe seamless cycling infrastructure
- Most of the people use bicycles for **last mile connectivity**
- Domestic Demand at all time high

2024

- Rise in penetration rate owing to easy access to finance
- End to end ecosystem for producing indigenous bicycles
- **New jobs created**

2025

- World Class R&D Centre in India
- Metro cities have dedicated infrastructure for cycling
- **Demand for e-cargo and ride sharing picks up**

2026

- India's imports decreases to an all time low.
- People taking cycling as a means of healthy lifestyle

2028

- All metros have **e-bikes docks**
- Huge job creation in the bicycle sector
- India is Atmanirbhar with minimum imports

India has developed supply ecosystem & has a scalable vendor base

Domestic manufacturers/ MSMEs adapt to International demand and standards

Ride-sharing & e-Cargo gain momentum as mobility solution. Consumers prefer high-end performance bikes

India - a global manufacturing hub, has safe riding infra & is domestically sustainable



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