Unlocking India’s sustainable mobility potential

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With India’s transition to a more sustainable mobility model unclear following the withdrawal of ambitious electric vehicle targets, Bharat Dhawan, Managing Director at Mazars India looks at the key themes behind India’s sustainable mobility aspirations and asks whether industry collaboration is the answer?

With a population of over 1.3 billion people, rising urban incomes and low car ownership per capita, India is seen as a growth market for the automotive industry. But as a global push for more sustainable mobility solutions gains environmental approval, whether India can keep pace will be determined by three themes.

1. PARALLEL DEVELOPMENT

Vehicle congestion is a major problem for India’s cities. While banning diesel vehicles more than 10 years old from the likes of Delhi city centre is a step in the right direction in terms of reducing pollution, the sheer numbers of two and four wheeled vehicles on the streets of India’s major cities and growing urban areas requires a more joined up approach than simply banning fuel-powered vehicles in favour of electric. Digital development of shared mobility solutions, including ride sharing and public transport have key roles to play in India’s transition to a sustainable mobility solution. Connected mobility solutions at B2B (business to business), B2C (business to customer) or P2P (peer to peer) level from the likes of Door2Door, Uber, Ola and Wa as well as a focus on more electric public transport vehicles are already helping to make Indian city’s smarter and reducing individual travel needs.

Parallel policies that develop shared mobility solutions alongside encouraging environmentally-friendly vehicle ownership are likely to improve India’s sustainable mobility transition.

2. COMPETITIVE AMBITIONS

Ambitions by Indian and Indian-based companies in the automotive sector and wider supply chain should not be underestimated. While the slow speed of electric vehicle (EV) take up in India due to cost of ownership, the government’s backtracking on its goal to fully switch to electric vehicles by 2030 and a lack of infrastructure is conspiring to put India behind the race to reach a sustainable mobility solution, companies are not prepared to remain at a competitive disadvantage. In February 2018, India’s Mahindra Electric announced a partnership with Korean company, LG Chem, to develop new lithium-ion cells and battery packs exclusively for the Indian EV market. Similarly, Tata Motors has also developed a long range battery pack for the Indian market with a range of over 300 kilometres per charge to match the popular Nissan Leaf. The development of sustainable mobility solutions by companies such as Tata and Mahindra independently of government policy will ensure that India’s ambitions in the sector remain on track nationally and internationally.
India’s opportunistic approach and ability to adapt quickly alongside strong IT skills are highly prized attributes in today’s technology-focused business environment. So can India’s automotive sector use such capabilities to develop the market for sustainable mobility solutions? What’s becoming clear is that progress will not simply depend on having the appropriate skills or mindset. Equally important to unlocking India’s sustainable mobility potential will be understanding what works in the current market and how companies can embed those ideas into an appropriate strategy going forward.

**COMBINING TECHNOLOGY AND SOLUTION-BASED SKILLS**

There are two aspects to India’s automotive industry, one based on strong IT capabilities and the other based on an ability to find dynamic yet cost-effective solutions. While cost is an important factor for Indian car ownership, throw into the mix India’s aspirational and growing middle class and solutions become more complex to define. You need look no further than Tata Motor’s Nano car launched in 2009 costing approximately $2,000. Billed as the cheapest car in the world, the Nano provided a solution on cost, but could not initially live up to consumer expectations. Tata is using the experience to develop an EV version, but it provides a valuable lesson in that an approach which can dovetail India’s technical knowhow with solution-based capabilities more in tune with consumer demands will be key to achieving sustainable mobility success.

**TRANSACTION TRENDS**

Just four OEMs account for 75% of car sales in India - Maruti Suzuki, Hyundai, Mahindra & Mahindra and Tata Motors. Maruti Suzuki alone has more than 40% market share. Such high market concentration means for many companies looking to gain a foothold in India’s booming automotive market, buying into the market through OEMs and suppliers that are either based in India or have a business relationship in India is the preferred approach. A rapidly growing economy means transaction activity continues to be strong in most automotive segments, including two wheelers and commercial vehicles, not only from international OEMs, but also vertical transaction activity between Indian companies looking to consolidate or grow their market presence. In the other direction, Indian companies are looking to acquire international expertise that will give them an edge in the market, either through technology or smart component expertise. While a similar transaction pattern of buying in expertise in order to meet sustainable mobility needs is expected, start-ups focusing on technology will challenge the status quo, particularly in the shared economy sector.

**SPEED OF TRANSITION**

Despite a huge and growing automotive market, India’s take-up of electric vehicles (EVs) is slow mainly due to lack of infrastructure to support growth. However, India’s de-carbonisation policy has seen an increase in renewable energy infrastructure, particularly in solar, hydro and wind power, which may be the push needed to give EVs a much needed boost in popularity. Indeed, legislation introduced to tackle pollution provides a good benchmark on how quickly changes can happen, with Government implementation requirements typically taking months rather than years. Once better infrastructure is in place and incentives and legislation to promote sustainable mobility solutions are introduced, the transition to hybrid, electric and autonomous cars in India is likely to be quicker than seen in many other countries.
CASE STUDY:

New Delhi

~26 Mn
POPULATION
(2016)

~2.8 Mn
CAR OWNERS
(2014-15)

~2.4 Mn
METRO RIDESHIP
(2014-15)

3.3 Mn
HOUSEHOLDS
(2014-15)

1,483
DELHI AREA
(SQ.KM)

INR 0.24 Mn
AVERAGE ANNUAL PER CAPITAL
INCOME (2014-15)

CASE ASSUMPTIONS

PERSONAL OWNERSHIP MODEL

There are 2.8 Mn Cars for 3.3 Mn Households in 2014-15.
The penetration of cars per households stands at 85%.
We assume that households of Delhi grow at 2%,
hence in 2030, households stand at 4.5 Mn.
To cater 4.5 Mn households let there be car penetration of 90%.
Hence Cars in 2030 stands at 4.07 Mn.

We assume that, in a year a personal
owned car covers an average of 12,000 Km
in a Year.

RIDE SHARING

It is assumed that each ride sharing
car will carry a total of 4 passengers
across each journey.

In each case, it is assumed that
100% ride shared cars and 50% of personal cars will be electric.
Each ridesharing vehicle is assumed to cover an average
distance of 24,000 km/year.

VEHICLE ECONOMICS

✓ Operating costs for a Private 4w EV, Private 4w Petrol and Shared 4w EV are assumed to be 0.20, 0.27 and 0.09
USD/km respectively.
✓ Operating cost for a Public Transit EV is assumed to be 0.27 USD/km, as per the expenditure undertaken from
the DTC Report.
EVS CAN HELP REDUCE the burden of rising gas pricing by 26.2%.

RIDE SHARING CAN HELP REDUCE the ownership cost by 69.3%, congestion by 60% and Pollution.

**Data Points Size**

- Avg Distance – YR (Ride Sharing) 24,000 Km
- Avg Distance – YR (Personal Car) 12,000 Km
- Estimated Electric Vehicles 2030 18,34,728
- Estimated ICE’s (Petrol) 2030 16,30,869
- Avg Distance Covered by EVs 24,46,30,41,265 km
- Avg Distance Covered by ICEs 12,23,15,20,632 km
- Shared 4w EV (USD/KM) 0.09
- Private 4w EV (USD/KM) 0.20
- Private 4w Petrol (USD/KM) 0.27

**TOTAL RUNNING COST: $ 9.6 BN.**

**Data Points Size**

- Avg Distance – YR (Ride Sharing) 24,000 Km
- Avg Distance – YR (Personal Car) 12,000 Km
- Estimated Electric Vehicles 2030 2,03,859
- Estimated ICE’s (Petrol) 2030 32,61,739
- Avg Distance Covered by EVs 24,46,30,41,265 km
- Avg Distance Covered by ICEs 24,46,30,41,265 km
- Shared 4w EV (GBP/km) 0.09
- Private 4w EV (GBP/km) 0.20
- Private 4w Petrol (GBP/km) 0.27

**TOTAL RUNNING COST: $ 6.8 BN.**

**Data Points Size**

- Avg Distance – YR (Ride Sharing) 24,000 Km
- Avg Distance – YR (Personal Car) 12,000 Km
- Estimated Electric Vehicles 2030 4,15,435
- Estimated ICE’s (Petrol) 2030 8,15,435
- Avg Distance Covered by EVs 24,46,30,41,265 km
- Avg Distance Covered by ICEs 24,46,30,41,265 km
- Shared 4w EV (GBP/km) 0.09
- Private 4w EV (GBP/km) 0.20
- Private 4w Petrol (GBP/km) 0.27

**TOTAL RUNNING COST: $ 4.06 BN.**

Source: Mazars’ Global Knowledge Center Analysis; Research paper (Congestion cost incurred on Indian Roads); Travel Behavior and Society; Press articles