**Intern’s Details**

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| **Smart Task No.** | 3 |
| **Project Topic** | Electric Vehicle - Techno Commercial Analysis |

**Smart Task (Solution)**

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| **Task Q1 : Make a list of challenges that the EV industry is facing in India. Challenges faced by manufacturers, Govt and Consumers.** |
| **Task Q1 Solution :**  While there is no deficiency of government motivators in India, the absence of sufficient framework and unaffordable cost of EVs are felt by both industry and consumers the same. To understand where the following period of advancement will occur, we need to take a look at the flow issues for electric vehicle selection in India.  Challenges For The EV Market In India :   * High price of EVs currently * Inadequate charging infrastructure * Incentives linked to local manufacturing * Range anxiety among consumers * Lack of options for high-performance EVs * Inadequate electricity supply in parts of India * Lack of quality maintenance and repair options   Challenges faced by EV manufacturers in India :   * **Bank Finance** - A strong bank finance instrument is as yet missing in the country. A couple of banks like SBI and Axis, to give some examples, are offering credits on chosen models. The public authority ought to request that banks offer advances on electric vehicles, which will increase deals. * **Supply-Chain Problems** - EV battery producing in India is still to a great extent reliant upon imports because of the absence of Lithium, and this represents a significant obstacle for organizations willing to put resources into India's EV industry. * **Lack of Trained Personnel** - Notwithstanding the issue of the wasteful framework, the absence of talented staff in electric vehicle markets is a huge test that unfamiliar financial backers need to manage.   Challenges faced by consumers in India :   * **Lack of Charging Stations** - India was accounted for to have 650 charging stations in 2018, while China had over 456K charging focuses around the same time. As well as charging focuses, the absence of private parking spots is additionally noted as a deterrent for electric vehicles appropriation, and the absence of reasonable sustainable power implies charging EVs is putting a cost for the generally focused on coal-fuelled power network. * **High Price of Electric Vehicle** - The normal expense of electric vehicles in India is around INR 13 Lakh, a lot higher than the normal INR 5 Lakh for efficient vehicles run on customary fuel. Likewise, the cost of electric bikes and cruisers in India is between the value scope of INR 70K – INR 1.25 Lakh, when contrasted with INR 30K – INR 40K expense scope of ICE bicycles and even lower for bikes.   Challenges faced by Indian Government :  **Impact of Fame Policy**  While nobody questions that the Indian government is doing everything it can to push EVs, the Faster Adoption and Manufacture Of (Hybrid) And Electric Vehicles (FAME) strategy has been censured by the business previously. The public authority had at first focussed on vehicle normalization with FAME, which was side-lined for an accentuation on assembling. Right now, the public authority is occupied with drafting an EV charging foundation system.  The public authority is additionally intending to burden non-electric vehicles heavier regardless of whether the deals of electric vehicles probably won't legitimize a particularly constrained progress. Also, this has squeezed car OEMs. |

500 Words (Max.)

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| **Task Q2 : Explain the success story of e-rickshaw in India. Can we completely replace diesel auto by e-rickshaw (To-To) all over India? Justify your thoughts.** |
| **Task Q2 Solution :**  The e-rickshaw industry has now settled itself as the undisputed anomaly of India's auto area. In the midst of the most exceedingly awful stoppage in-vehicle deals, e-rickshaw deals have become unabated.  E-rickshaw is low maintenance, have a lower cost to work than their petroleum and CNG partners. However, more significantly, across North India, where depleting air quality levels have made urban regions intolerable, the discharge-less e-rickshaw is being hailed as the unassuming, local problem solver to a cleaner, less petroleum product subordinate India.  While deals of different vehicles have everything except slowed down, India's fleet of battery-worked three-wheelers has developed from 4000 in 2010 to more than 1.5 M in under 10 years. Consistently 11K new electric rickshaws are created every month. Currently India's e-rickshaw industry is largely unorganised though big players like Mahindra are now getting in the game.  India's e-versatility change is led by little vehicle portions, especially, the omnipresent electric cart. The e-rickshaw is the favoured method of last-mile drive for office participants, particularly in and around metro courses and exceptionally populated pockets. Generally speaking, India is home to 1.5 million battery-fuelled electric rickshas, obliging more than 60 million clients consistently, for whom moderate versatility is basic. E-rickshaws do not just structure a significant piece of the portability biological system in level II and III urban communities like Lucknow, Varanasi, Dehradun, Ranchi, Patna, and Udaipur yet, in addition, are an eco-accommodating last-mile drive alternative for Tier I urban areas like Delhi, Noida, and Gurugram.  In general, India's mission for supportable versatility brought the principal wave of electric portability as the unregulated and impromptu e-rickshaws utilizing lead-corrosive batteries. A similar mission combined with mechanical headways and the right arrangement push is decidedly upsetting India's EV industry. Battery-worked e-rickshaws transformatively affect India's versatility scene as well as across enterprises like force, battery makers, auto industry, as well as affecting the climate decidedly. Surely, e-rickshaws are the present and the eventual fate of the EV transformation in India. So, we can replay diesel-auto with e-rickshaw but no completely, because if we need to transport heavy weight small in size to a higher altitude then we need diesel-auto because e-rickshaw doesn’t have that much power to transport heavy weight to a much higher altitude.  According to me, we should replace a high percentage of diesel-auto to e-rickshaw as, the low upfront cost compared with auto-rickshaw, expanded reasonableness for workers, and higher speed contrasted with the cycle cart – all establish the offer of electric carts. The running expense for an electric three-wheeler is just Rs 0.4/km when contrasted with Rs 2.1-2.3/km for the regular ICE-based rickshaws. Combined with buy motivations from the government, electrification of rickshaws based on diesel, petroleum, LPG and CNG is genuinely an easy picking for the country. E-rickshaws likewise have a positive ecological advantage with zero tailpipe emanations. Moreover, the normal energy utilization of electric rickshaws is 53.76 KJ/passenger/km which is quite possibly the most productive among all types of mechanized vehicle. |

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| **Task Q3 :**  **List the initiatives done by other countries in terms of EV. How can we replicate that in India?** |
| **Task Q3 Solution :**  Initiatives done by different countries in terms of EV -   * **Germany’s Electric Car Initiative : Germany was the first to construct vehicles in the 20th century, they feel the significance to be the main country in the electric vehicle drive. The government is financing $700 million into electric portability test drives.** * **United States - China Electric Vehicles Initiative : In 2009, the Chinese and American governments concurred at the Electric Vehicles Forum to increment and work upon the common interest in enhancing the utilization of electric vehicles.** * **Taiwan Electric Car Initiative : The nation as of now gives subsidies to those buying electric vehicles, the public authority is set to make new approaches to advance the acquisition of electric vehicles sooner rather than later.** * **United Kingdom Electric Car Initiative : The United Kingdom-based drive tries to make electric vehicles more alluring as well as more reasonable to drivers by giving impetuses up to GBP 5000 toward the acquisition of module or electric half breed vehicles.** * **Israeli Electric Car initiative : The better place will be giving the important foundation to electric vehicles, including 500,000 charging stations and 200 hitter trade focuses. As far as it matters for its, the Israeli government has diminishes charges on the acquisition of electric vehicles with an end goal to urge residents to do the switch.** * **Australia Clean Driving Initiative : Clean Driving is a Canberra Region-based drive to help those searching for a transportation arrangement that has zero emanations, those needing an electric vehicle, and obviously, those hoping to help with making a supportable future.** * **London Becomes International Electric Car Capital : Because of their enormous carbon impression, London is presenting 100,000 electric vehicles, alongside 25,000 charging stations with an end goal to diminish their issues with carbon emissions.** * **Canada Electric Car Initiative : The Vancouver Electric Car Association has been instrumental in expanding the utilization of electric vehicles to decrease carbon impressions. The nation is following and the Council is starting to make new laws, including revising local laws to consider low-speed electric vehicles on city roads without falling into difficulty.**   Initiatives we can take in India : **Technology innovation budget :** Government and companies need to make large investments in innovation and R&D projects to keep up with the pace of technology disruption.  * **Financing for Investments in New Technology Supply chain :** Indian government should prioritize coming up with a midstream strategy for the cell manufacturing sector. Building the EV supply chain needs billions of dollars worth of investment. * **Creating Demand :** The government can support in increasing the market demand by electrifying the fleet that it owns. * **Make Retail Vehicle Financing cheaper :** Government has to bring low-cost financing of electric vehicles across segments and all the states of the country. A lower interest rate on financing can support in reducing the total cost of ownership of electric vehicles and support in reaching the tipping points earlier than we think. |

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