

## Smart City and Its Need

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### ABSTRACT

*Transportation around the world is accounted to have one-third of the world's energy consumption. Transportation sector is therefore always been the central in the realization of a more sustainable energy system. Electro mobility (e-mobility) will play a key role in solving many of the challenges we face today with regards to energy use. Electro-mobility means to develop electric powered driven trains which are designed to shift vehicles from using fossil fuels and to reduce carbon gas emissions. It consists of full electric vehicles, hybrid electric vehicles and vehicles using hydrogen fuel cell technology. Microcontrollers and sensors that increase the energy efficiency of vehicles are also the part of electro mobility.*

This paper reflects how smart cities preventing their heritage.

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### INTRODUCTION

The environment and modern society are greatly influenced by mobility patterns of people. People can take long time and long distance trips. These trips are very rare and infrequent, for example moving between cities and between nations. But frequently, people travels in short time trips which mainly consist of travel within cities for day to day works. These trips showcase high regularity and a typical pattern following a daily rhythm. [1–6].

The mobility within a city, especially heritage city is high carbon mobility. High carbon mobility in a city is where carbon serves as a proxy to a wide range of environmental impacts which are associated with the lifestyle of travelling and other negative health conditions, using a private car. Whereas, Low carbon mobility, can be a solution as it lowers level of carbon emissions and can be considered as the ultimate in the policies of transportation, planning as well as

research. One must agree about the need of moving towards low carbon mobility, although disagreement can be on the optimal ways of achieving it. The need of the hour is to develop a smart heritage city that is sustainable and attractive, which can incorporate new designs and able to apply clear and pervasive solutions within cultural environments.

To develop new pervasive technologies and services, preserving the heritage of city has always been very complex. Givoni suggested that to achieve low carbon mobility three elements economic growth, need for transport, and the emissions resulting from transportation need to be decoupled. Out of the three elements, the Electric Vehicles can be the most outstanding example where we can decouple mobility from emission of Green House Gases (GHG) and air pollutants. Electro mobility is the term used for fully electric vehicles and also for hybrid vehicles and those vehicles which uses

hydrogen fuel cell technology. The concept of EV was initiated in the middle of 19<sup>th</sup> century, where electricity was preferred in motor vehicles propulsion in comparison to gasoline cars. In this paper, efforts have been made to understand the growth of electrical vehicles, its impact on the environment and of course the relevance of its use in developing a heritage city into a smart city, preserving its heritage.

### CONSECRATION OF HERITAGE

In Indian tradition, Heritages is priceless. Heritage means our places, creativity, culture and objects that our inherited by our ancestors and devoted to next coming future generations. Its interpretation is appurtenant in the place itself, the architecture of the building, that is described in conditions of the aesthetic, scientific, social, historic, or spiritual value for past, present or future generations. Thus heritage defines our identity or we can say that it is the legacy that we want to keep and preserve for long time.

Heritage cities also contribute in the economy and the internal development of the place. In all expect "Culture counts" and it is a full-fledged economic sector that generates impression on the urban environment, ranging from direct and indirect expenditure to employment generation. It gives respect, environment, and experience to enrich the art of the local artists and makes him capable to sprout the art and earn with that for increasing the economy of the city.

In the diversification of the Character (normal city) and the heritage city, it is very beneficial to live in the heritage city with the betterment for many aspects of a citizen's life cycle.

In a heritage cities, there is a concept of "heritage walk" through which we can persist a selected fragment of a place to aims for showcasing one of the most

authentic characterization of a city's, cultural, historic and architectural heritage. It gives a felicitous experience to the international and domestic tourists and revitalizes a sense of pride amongst the places and residents with hospitality.

In the comparison with character (Non Heritage cities), heritage cities are always more beneficial as it Attracts international and domestic visitors, provides Better Employment and transportation, High development growth rate of infrastructure and architecture, resulting in new and enhanced ambitious opportunities.

### SLAGS IN HERITAGE CITIES

Heritage cities generally don't go through changes that results in problems of mobility and accessibility. Exponential growth of tourism is a danger to heritage. As a matter of fact, the development of tourism in historic centers creates specific demands, like adaptation to new utilization of the houses, rigorous movement of people and vehicles, illegal parking, among others. Conservatives and the planners should go hand in hand to develop some policies, especially related to mobility and aimed at an approach to interaction between historic preservation of the environment with the dynamic socio-economic of the local.

### ELECTRO MOBILITY

#### (e-MOBILITY)

**e-Mobility** is emerging as a progressive approach to save power consumption. As per Enerdata: Independent Research & Consulting firm.

*"According to the Indian Ministry of Coal and Power, electricity consumption in India should increase four-fold by 2030, from around 1,000 TWh in 2015 to 4,000 TWh by 2030.*

*Despite energy efficiency programmes, electricity consumption should continue to grow at a rapid pace of 10%/year for the*

*next 15 years. Progresses in electrification (230 million persons should get an electricity connection), the elimination of diesel generation sets and increased economic activity spurred by the Make in India campaign should boost electricity demand by 2030. India will bet on renewable power generation to meet rising consumption, with a target of 175 GW of renewable power capacity by 2022, including 100 GW of solar capacity (from 6.7 GW in March 2016 to 20 GW in March 2017)."*

The technical meaning of E-mobility is "Clean and Environmentally friendly electric vehicle transportation." Its main goal is to develop this technology to save our surroundings from the bad effects of fossil fuels and carbon gas emissions and design new electric-powered drive vehicles with the new regulatory requirements acceptance of governments and other law-setting bodies. The concept of electro mobility comprises full electric vehicles, as well as hybrid electric vehicles and those using hydrogen fuel cell technologies. All these types of innovative ideas for e-mobility create welfare for environment and comprise the global problems on oil supply and the ending rate of flues.

### **HISTORY OF e-MOBILITY**

The history of E-mobility, started with the idea to develop an "Electric car". As early as the middle of the 19th century, automotive manufacturers have been conscientious at work at designing an electric-powered car, which they referred to as the car of the future. Unfortunately they can't reach on the peak of the mountain.

In 20th century, we are fighting the global problem of oil supply crises then prevention of these problem automotive companies again revised the idea of e-

mobility. After doing so many efforts, testing and changes, now we can include electric vehicles as mode of transportation which consist the utilization of electricity. It has discovered like clean, efficient and environment-friendly electric vehicle transportation.

We have basic 4 categorization of e-mobility ecosystem:

**e-Vehicles:** This component consist production, marketing, manufacturing, maintenance and most importantly financing.

**Infrastructure:** E-vehicles are need special type of infrastructure, which include charging station for vehicles, power distribution, billing for electricity supply, maintenance, power generation, and storage, and space providers.

**e-Mobility Providers:** Providers plays very important role in the manufacturers, management and car-rental operations.

**Regulations:** For E-mobility transportation, it is very important to set some rules and regulations which require acceptance of governments and other law-setting bodies, with some subsidies for buyers at the motive of increase their sales.

### **BENEFITS: e-MOBILITY**

Every coin has two faces, this technology also have two phases like benefits and challenges. The biggest benefit is, we are reducing the total amount of energy required in transportation which is environment friendly and with the help of this technology automobile market creates heave employment opportunities for youth by developing a healthy competitor's ship for making cheap, fast and effective transportation.

On the other side we are facing problems with E-mobility like high rate citations of e-vehicle, which is not feasible for us as well as the manufactures, because they should spend a higher cost for investment.

The speed and performance of e-vehicles are fluctuating with the variation of the battery capability. So for the better use of e-vehicles, we should set equilibrium between both of them.

## CONCLUSION

In the coming years this emerging technology is a boom for all over the world according to the statically analyzed reports by experts, prediction value is US\$ 390 billion market in 2020 globally.

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