SUSTAINABLE TRAFFIC MANAGEMENT: A DATA DRIVEN APPROACH

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ABSTRACT: *The modern day governance should take an advantage of technology and its intervention in administration of various governing bodies. The paper directs towards technology intervention and its benefits in administration of vehicles and their day-to-day utilisation.*

Keywords: PUC, GPS, duty

INTRODUCTION: Over centuries, the kind of governance has evolved from Roman law to the modern day law system. The central aspect of all these governance systems is in the direction of policy making and its implementation. For many years, Policy making has been the central aspect of governance. However, to make a policy needs a detailed study of various situational aspects in a democracy. The paper throws insight into technological intervention as a policy of governance.

LITERATURE SURVEY: Diercks et al worked out an analytical framework to assess the emergence of a new policy paradigm labelled "transformative innovation policy".It can be seen as layered upon, but not fully replacing, earlier policy paradigms of science and technology policy and innovation systems policy. The paper established conceptual diversity despite a common agenda for transformative change. Two global initiatives were taken to promote new innovation policies, Mission Innovation and the Global Covenant of Mayors for Climate and Energy[1].Barhoumi et al did a empirical study on the reaction of fiscal policy to changes in the permanent and transitory components of GDP in a panel of countries and found evidence that government spending tends to be counter-cyclical conditional on temporary shocks and pro-cyclical conditional on permanent shocks[2].Magro et al built on the smart specialisation literature, the innovation policy and policy evaluation literature, and the literature on governance in pluralistic contexts and built a conceptual framework to analyse the governance of policy-mix evaluation[3].

METHODOLOGY: The paper aims to develop a big data about the vehicle database including information about the permits, usual trips, license numbers and mobile numbers of owners and drivers of each vehicle. This database helps in random surveillance of vehicles across the nation for the sake of better policing and implementing laws. The big data would be stored in the form of relations in a relational database interfacing with the government bodies needed. This database helps in stricter norms. For example, a sql query asking for the number of expired pollution certificates of vehicle owners would give an avenue to remind these people to get their vehicles certified for pollution. Such a database creates additional revenues in the form of short message service. However, the pollution under control certificate is only valid for a year[4].In the direction of paperless business, the PUC will be sent in the form of a short message service to billed to the vehicle owner. Moreover, the vehicle owner's bank details would also be recorded in the database and the amount of PUC would be automatically debited to the vehicle owner's bank account, followed by a Short message service.

Table 1: vehicle classification and description[5]

Vehicle Use	Vehicle class	Description
Personal Use	MC 50CC (Motorcycle 50cc)	Motorcycles with an engine capacity of 50 cc or less
	MCWOG/FVG	Motorcycles with any engine capacity, but without gears, including

		mopeds and scooters
	LMV-NT	Light motor vehicles that are used for non-transport purposes
	MC EX50CC	Motorcycles with gear, Motorcycles with a capacity of 50CC or more, Light Motor Vehicles (LMVs) including cars
	MC With Gear or M/CYCL.WG	All motorcycles even with gear
Commercial Use	MGV	For medium goods vehicle
	LMV	Light motor vehicles including motorcars, jeeps, taxis, delivery vans
	HMV	Heavy Motor Vehicles
	HGMV	Heavy Goods Motor Vehicle
	HPMV/HTV	Heavy passenger motor vehicle/Heavy transport vehicle
	Trailer	Person holding heavy vehicle driving licence can apply for heavy trailer license

Table 2: Vehicle statistics across india, 2015[6]

Indicator	Value
Vehicle classification	
Non transport	
Two wheeler	154297746
Cars	23807986
Jeeps	2546731
Miscellaneous	10474886
Transport	
Buses	15,27,396
Taxis	2256619

Light Motor Vehicles(passengers)	5028312
Goods Carrier vehicles	9344464
Total vehicles	210023289

DISCUSSION: A vehicle is usually given a registration number within a state and seldom transferred to another state. Based on the data, a vehicle owner could be reminded to have a pollution check of his vehicle. And also, at broader sense, the delhi state government would get an insight to make laws stating if a vehicle has to ply on roads not more than 14 years or not. This is needed because, most of the non-transport vehicles are driven home-work-home or usually parked in a metro station. Thus, in practice, vehicles are rarely consumed to the fullest extent but sold away after 14 years of service. It has become almost a fashion to drive without a license among college students. Driving Licenses must be checked at college parking lots instead of on roads. This would give better policing. This is incase of non-transport vehicles.

 In case of transport vehicles, the vehicles span the length and width of the country along the golden quadrilateral and across the national highways. A lot of security measures are in place but for the human factor involved. Some of the measures are police checkposts, Highway patrols, pollution check norms and Geo-spatial positioning system (GPS).The nation is yet to see a data driven statistical approach to these roadways and the vehicles plying long distances. Using the big data analysis, a huge data is to be formatted interms of vehicle registrations, owners, driving licenses and their mobile numbers so that the highways could be patrolled in technology. These days, a mobile number is seldom changed. Thus, by tracking the mobile of a truck driver and verifying the vehicle by GPS, the vehicle speed could be verified depending upon two successive checkposts and highway patrol groups. Also, the pollution checks of national permit vehicles could be done on the highways while they halt for various purposes.

CONCLUSION: Such technology intervention measures(state and nationwide) would bring in internal quality among police and other government bodies. Also, the kilometres travelled by a vehicle could automatically be calculated and there is little chance for the driver to nullify the kilometre reading in the odometer. Thus, pollution norms could be implemented stricter. Such technology interventions would be highly random across the country. Thus, it inculcates a fear of duty mindedness and a notion to abide by law, among citizens of the country. This also gives an information about the general health of vehicle drivers so that necessary medical measures could be enforced. The data also gives an information about the average age of long distance drivers.

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