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IMPROVING THE EFFICIENCY OF EMPLOYEE COMMUTE SYSTEM

Himanshu Pandey[1] , Dr. Vanishree Pabalkar[2]

[1,2] Symbiosis Institute of Management Studies

A Constituent of Symbiosis International (Deemed) University, Pune.

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Abstract:

There are various kinds of commuter benefit schemes, since different businesses see what they believe to be more essential. Shared-car systems are relaxed and staff are permitted to use them, but very structured programmes and driver assistance schemes are managed by employees. Both steps increase an organization's ability to influence employees' travel choices, improve employee satisfaction, demonstrate a commitment to cleaner air in the region, and promote effective air travel. This paper discusses using radio to assist in transportation of staff.

I. Introduction

With the need for better commutes and traffic management, India has seen a rise in corporate commuting and bus rides. This tells us that riders go back and forth to work every day. Because of insufficient travel facilities, including public transit, agents often fear for their personal safety while they are traveling. Due to the disorderly transportation of an excessive number of vehicles on highways, causing jam, breakdowns and traffic chaos, the problems are further aggravated. In addition, the trend of female participation in the labour force, particularly for employment overseas, highlights the need for safe and efficient travel for jobs. Edge cutting research indicates new solutions. The Employee Transportation Scheme is one solution to this issue. The use of new technologies has greatly improved the workplace travel experience for commuters. Randomly selected often uses the Internet to solve complex high-tech rifts with ever-growing technological systems. We provide a balanced approach that is superior in many areas. The company is able to operate efficiently by using this scheme. Using this software means companies don't have to hire too many people.

There are several benefits from different industries; but, at Geo-Radius, much of this can be achieved at once. We will include the precise services for your individual needs. Real-time data which can be included in particular journeys can help overall management of an on-going tour. In order to validate their cell number, drivers and staff need to install an app into their smartphones. Works on even other applications including routing & scheduling and more. It also reveals a lot of details on HR and managerial decisions.

The various types of support provided by employee transit scheme. Furthermore, it provides for scheduling, drafting and billing. There is a react native dashboard for the admin team to administer their systems. This allows team members to know where the trip is, get valuable data, get team-building, and get a sense of accomplishment. Finally, the process allows managers to generate roster reports. If you configure a zone, you won't need to do it anymore! This strategy also ensures that cars optimally run and determines the shortest course. This method maintains the sales and transaction tracking. In this way, this software facilitates problem-solving among numerous partners.

1.1 Employee Transportation System | Routing & Rostering | Efficient Route Mapping | Trip Reports:

End-to-End Transportation Automation Software:

Trip scheduling is a feature of LUCC. This results in an increase in available earnings and profits. Vehicleport allows fleets to plan their routes, track travel times and pinpoint the whereabouts of cars. The app offers aggregated information on fleets and track vehicles. It is achievable goal of involvement which efficiency and is easy to understand.

Route Generation:

As an integrated framework the software is quick, effective and scalable.

Web Based Rostering:

Employee transportation is somewhat unpredictable and it needs constant adjustments. Any call centre employees are located all over the city and the total number of workers is from 1800 to 2000. Facility administration is concerned with ensuring that staff are picked up and dropped at the appropriate times. "Team bosses" would create a roadmap for their teams. Team leaders might find it useful to set up pickup and drop off plans for their event staff. One implemented used the mixture of automated routing and calculation to make travel decision easier for passengers and avoid unnecessary stopovers. Female Employee Pickup/Drop Rules – There are defined rules for companies on hiring and organizing for the female staff

Online trip reports:

Trip reports capture the number of employees travelled on given route along with distance.

Passenger Application:

Vehicles are advised to stay away from designated parking lots. You will use the mobile devices to remotely drive the vehicle. The mobile application provides users with accurate information about assigned vehicles to enable users for prompt vehicle replacement. In order to ensure both driver's and caller's anonymity, drivers should be given names of direct dial. You will tell all your friends the news using email too. Recipient SMS has a GPS interface with data from Google Maps.

Arrival Time Notification:

Notifies time & distance for pickup is displayed real-time on map

Driver Application:

Throughout this app, it is open to drivers to be assigned a delivery spot and time to pick up their clients. Both people inside the pickup are aware of the time of the pickup. The driver will navigate using google maps provided by the company inside the software. Via this app, the passengers will alert the driver when he approaches. In the "No Show" situation, the platform staff would be alerted. The driver and the passengers would have to make direct communication with each other.

Employee Transportation Benefits are Good for The Company:

Employers who grant transportation benefits for members of their workforce gain several advantages for their company. Granting these benefits can help the company by:

• Attracting and retaining workers

• Minimizing payroll taxes

• Enhancing customer access to services and goods

• Expanding service hours

• Minimizing gas emissions and conserving energy

• Demonstrating company support of work-life balance

• Helping public transit

• Developing the corporate reputation as an environmentally and worker-friendly company

Sustaining Employee Transportation Benefits:

Companies interested in offering employee transportation benefits for their workers have a many selection when it comes to designing a program. They can:

• Participate in a Qualified Transportation Fringe Benefit program by allowing workers to set aside pre-tax dollars to cover transit or vanpool costs or by subsidizing the expense for their workers and deducting the costs as an employee benefit

• Partner with local transportation providers to educate employees about alternative transportation options they can use to commute to work

• Become a member of a transportation management association, a nonprofit membership organization representing employers and business leaders seeking to ease traffic congestion and lower reliance on single-occupant commuting

• Support ridesharing among employees by sponsoring carpools, shuttles, or vanpools

• Designate a staff person to represent an Employee Transportation Coordinator

• Partner with other local employers to form a transportation consortium and jointly support shared ride selections or access discounted transit passes for employees

• Offer telecommuting and flex-time schedules to help lessen traffic congestion and related air pollutants.

The Economic Downturn Brings Increased Opportunities for Shared Ride Commuting:

We have experienced people lose their financial stability and their work security during the past year. The desire to slash costs is a defining feature of this period of economic development. Many riders have drastically modified their way of traveling to work owing to widespread use of ride-sharing applications. So, these riders who park fewer car and by utilizing mass transportation are minimizing noise and traffic congestion.

Financial Incentives for Employers;

Forward-thinking companies who are concerned with getting their workers during the crisis concentrate on offering accessible transportation to their employees as a cost-effective fringe advantage. This would help lower travel expenses for companies for their workforce during these cycles of economic decline.

Five Actions that Can Take to Support the Employees in These Challenging Times:

• Support ridesharing to lessen the economic impact of commuting on the employees

• Designate a staff member to assist with the design, implementation, and administration of programs that encourage ridesharing.

• Subsidize employees' commute through the Qualified. Transportation Fringe Benefit program as well as through vouchers and bus passes.

• Maximize the benefits of partnering with other businesses or with Transportation Management Associations to design company specific transportation solutions.

• Learn how businesses like have implemented innovative programs.

II. Review of literature:

Lua et al. (2018), studied on Cooperative and Connected Intelligent Transport Systems for Sustainable European Road Transport. The paper will present some preliminary results of C-MobILE, including recently developed business model for C-ITS deployment and an initial generic architecture, followed by some discussions. Intelligent Transport Systems (ITS) covers a wide range of products and solutions that deploy Information and Communication Technologies (ICT) aiming at improving traffic safety, transport efficiency, environmental efficiency, energy efficiency and driver comfort. The development and large-scale deployment of C-ITS (Cooperative ITS) will not only provide services for road users, but also substantially contribute to automated road transport. The project C-MobILE (Accelerating C-ITS Mobility Innovation and deployment in Europe) aims to stimulate large-scale, real-life and interoperable C-ITS deployments across Europe. It will establish research pilot sites for deployment of sustainable services that are supported by local authorities, and ensure interoperability and seamless availability of high-quality services for end users, that will be successful from a business perspective.

Bartle et al. (2017), share their views on Employer Perceptions of the Business Benefits of Sustainable Transport. This paper reports on in-depth interviews with senior managers of employers located in two peri-urban areas on the edge of the city of Bristol, south-west England. The research was carried out during a period when public funding was available to support the introduction of sustainable transport measures. The interviews aimed to find out whether senior managers perceived the promotion of sustainable transport as rel-evant to their business concerns, and how this varied between different types of organisation. The results showed that all managers believed that measures to increase the use of alternative modes for commuting and local business travel could be beneficial for their business, even if these benefits were indirect and difficult to quantify. The

perceived benefits of sustainable transport included: helping to ease traffic congestion on the road network, thereby reducing associated delays and stress; helping employers manage excessive demand for car parking; improving staff wellbeing; and widening the recruitment opportunities among workers lacking access to a private car. Employers who perceived the greatest benefits were also the most willing to engage with public authorities in introducing new workplace-based mobility measures.

Veleva et al. (2014), Introduced Understanding and addressing business needs and sustainability challenges. The study found that access to infrastructure e such as rail, green buildings and roads e was the most important factor for companies to locate to Devens, followed by the lower cost of real estate (59%) and tax benefits (52%). Top two sustainability challenges for Devens companies included improving energy efficiency and improving materials efficiency. Eighty six percent of Devens organizations reported partnering with others locally, and 79% said their organizations could benefit from such partnerships in the future. Companies were most interested in partnering around joint sourcing, infrastructure and knowledge sharing. The study confirmed that local government efforts to develop Devens infrastructure and establish supportive sustainability policies and programs were in line with business needs and a key factor for Devens' success. It confirmed earlier research on the role of industrial ecology as a cluster development policy and the importance of diversity of firms, trust, sustainability policies, and supporting network development as key to creating both business and social value.

Ommeren et al. (2009), studied on Are Workers with A Long Commute Less Productive? In the current paper, they have emphasised the importance of the econometric specification of the absenteeism model to be estimated. In particular, it seems fundamental to address (time-invariant) unobserved worker heterogeneity, which is standard in the panel data literature, but also to address the issue that absenteeism is measured over a period, whereas commuting is measured at a certain period in time. When this technical detail is ignored, fixed-effects estimation generates a downward bias of about 50%. Time-varying unobserved heterogeneity, which They address by examining changes in commuting distance induced by the employer, is shown to be a less relevant issue.

Lu et al. (2019), introduced How Does Improvement in Commuting Affect Employees. They collect rich worker month-level administrative panel data from two companies for a two-year period prior to and after the opening of a nearby subway station, which significantly improved public transportation commutes for a subset of workers. Consistent with a simple principal-agent model where improvement in commute reduces the cost of effort for workers, they find a significant difference-in-differences (DID) increase (12.6% of the standard deviation) in bonus pay (which is strongly correlated to worker-level performance measures) for affected workers relative to coworkers not impacted by the subway. The bonus increase is larger for workers with more variance in performance measures (marketing personnel and non-managers), is positively correlated with commute time saved, and lower for workers with access to technology that facilitated telecommuting.

Rotaris et al. (2019), commuting to college: the effectiveness and efficiency of transportation demand management policies. This paper presents an estimate of the effectiveness and the efficiency of nine hypothetical transport policies regarding the University of Trieste, Italy, on the basis of a transport demand model estimated via revealed and stated choice data. All policies but one are effective in reducing car use, but only six of them appear to be efficient. They find that fully subsidizing bus fares would be the most effective and efficient policy. However, it is doubtful whether fully subsidizing bus fares is financially sustainable. The second-best policy would be a mix of bus subsidies and parking restrictions. In case of the University of Trieste, their model suggests the adoption of a policy mix based on a relatively low hourly parking tariff (€0.3 per hour) and the use of the parking revenues to subsidize the bus users. The methodology and the results presented in this paper can be used by the college mobility managers to design better transport policies.

Murphy et al. (2010), an alternative Approach for Assessing Regional Commuting Efficiency. This paper revisits the notion of random commuting within the excess commuting framework. In doing so, it argues that the average random commute, is a more appropriate basis for measuring the efficiency of urban commuting patterns. Using this as a base, the paper introduces two new measures of commuting efficiency based on measuring the collective commuting economy of individuals for the journey to work: commuting economy and normalized commuting economy. It is argued that because the average random comute has an intrinsically behavioral interpretation, the measures introduced yield more explicit explanations of the overall nature of travel behaviour within the constraints set by land use geography and the spatial distribution of the transport network. The framework is applied for two different years, 1991 and 2001, and for different modes of transport.

Li et al. (2019), Job growth, accessibility, and changing commuting burden of employment centres in Melbourne. This paper aims to advance international knowledge by measuring job growth and costs of labour market access between 2011 and 2016 for employment centres (EC) in Melbourne, Australia. A comprehensive transport cost model is used that incorporates detailed transport costs and travel times associated with transport modes. By tracking job growth and changes in worker commuting burdens, this paper distinguishes 'high-cost' ECs from 'low-cost' ECs, for their respective labour pools, and identifies which ECs offer opportunities for better transport outcomes. The results show that well-planned public transport (PT) systems and residential development, coupled with walking and cycle networks, are important features of ECs experiencing lower commuting burdens. Drawing upon the conclusions, this research recommends more effective approaches by governments to foster effective investments in urban infrastructure and discusses how broader policy and investment decisions can align to optimize employment agglomeration and minimize negative transport impacts.

Nelson et al. (1997), Association Between Bicycle Facilities and Bicycle Commuting. This assertion is based on a combination of anecdotes, a few case studies, and mostly wishful thinking. Until now, there have been no cross-sectional studies of the association between bicycle pathway supply and commuting by bicycle that control for a variety of factors. Cross-sectional analysis, controlling for a variety of extraneous factors, can help to attribute differences in bicycle commuting to the overall supply of pathways. Cross-sectional data are applied here to 18 U. S. cities to help fill this gap in research. After considering such factors as weather, terrain, and number of college students, a positive association was found between miles of bicycle pathways per 100,000 residents and the percentage of commuters using bicycles. It is speculated that one problem with shifting the mode of commuting away from automobiles may simply be an inadequate supply of bicycle facilities. Although this work is the first of its kind, more systematic research is needed to confirm its findings.

Sanchez et al. (2007), the Connection Between Public Transit and Employment. This article describes a study analyzing the locations and employment characteristics of workers with varying levels of access to public transit. Using census data and a variety of spatial measures generated by a geographic information system (GIS), a two-stage least squares regression was used to estimate the relationship of access to public transit with labor participation levels for Portland, Oregon, and Atlanta, Georgia. The results suggest that access to public transit is a significant factor in determining average rates of labor participation within these two cities. If transportation systems in American cities could be laid out so as to provide an opportunity for poor people to get meaningful employment, then they could begin to move into the mainstream of American life. A good example of this problem is my home city of Atlanta, where the rapid-transit system has been laid out for the convenience of the white upper-middle-class suburbanites who commute to their jobs downtown.

Bueno et al. (2017), Understanding the effects of transit benefits on employees. This research contributes to the understanding of this issue by examining the relationship between commuter benefits and mode choice for

commuting trips in the states of New York and New Jersey (US). Based on individual data from the Regional Household Travel Survey conducted by the New York Metropolitan Transportation Council and North Jersey Transportation Planning Authority, they adopted a multinomial logit model to identify the extent to which transport benefits to employees including public transport-related, private transport-related and benefits for walking and cycling promote changes in commuters' modal split. The analysis shows that commuter benefits play a significant role in explaining observed travel patterns. Benefit programs that pay for auto expenses (e.g., toll payments, mileage reimbursement, free parking) are negatively correlated with transit, biking, and walking, while employer-funded benefit programs for transit passes and bike reimbursements increase their respective mode shares.

Zhang et al. (2011), Improving travel efficiency by parking permits distribution and trading. In this paper, they study various parking management schemes in a many-to-one network, where each origin is connected to the destination by a highway with a bottleneck and a parallel transit line. First, they derive a model to compute the morning commuting pattern when the destination has inadequate parking space to accommodate potential private cars. Second, they propose and compare the following three schemes of distributing parking permits to commuters residing in different origins: uniform, Pareto improving, and system optimum distribution of parking permits. Third, free trading of parking permits among commuters in a free market is introduced to better cater for commuters' parking needs. Numerical examples show that parking permits distribution and trading are very efficient in traffic management.

III. The corporate commute challenge in India:

It is seen that the time spent in cab drives for picking and dropping off workers will adversely impact efficiency. To avoid long routes, workers favor companies that charge a peak period charge which raises the total cost of transportation significantly. Any workers become delayed in their arrival at work because of the shortage of supply of taxis at peak hours. Falling behind in getting to work everyday hinders competitiveness which results in lower profitability for the business. Today's mobility challenges make it important that businesses sponsor and supply their workers with reliable and efficient means of transportation. Employee cabs governed by aggregators thus enter into the picture. Big corporates have started partnering with aggregators to providing their workers with affordable on-time cabs operated by reliable drivers. However, the one important mobility breakthrough that is changing commutes is the transport automation systems.

IV. The role of Transport Automation Systems in solving the challenge:

Organizations use technology like the Internet of Things (IoT) and artificial intelligence (AI) to group workers together who live on the same path. This program will also forecast the demand and availability of transportation within the organization; businesses only request as many vehicles as needed on a regular basis. Predictive methods are used to locate bottlenecks and delays so as to minimize the number of hours workers must expend commuting to work per day. Technology embedded with cars will also ensure customer protection with a one-click emergency red warning and live monitoring solutions. Employees will alert their employers when they board and de-board cabs as well as give their cabbie input on his driving abilities and etiquette. Digital copies to driver logs will further guarantee that drivers who fall into crashes are not exploited for ridesharing purposes.

V. Advantages of the corporate commute benefits:

Automated employee transportation systems have advantages for employers as well as customers through reduced traffic congestion. Corporations that provide their workers with customized transportation gain significant gains of efficiency. Companies seeking to retain more talent will use the reality that they have frequent job commutes as a recruiting tool. Several individuals who reside in more remote regions are unable to

develop their own companies due to the lack of transport facilities. Employees would benefit from travel choices and will be able to incorporate jobs into their busy lives. As a result, more employers are promising free commuting as an extra bonus by utilizing a particular work posting. When workers are given convenient job places, it improves their efficiency and quality of life. With fewer time spent commuting, workers will perform more hours while growing their contributions to the company's achievements.

Staff who spend less hours driving have improved overall wellbeing and less sick days. The risk of employee burnout is greatly minimized by the simple method of traveling by vehicle. Commute programs can help employees in several areas including reducing payroll taxes, growing consumer access to products and services, and extending operating hours. Furthermore, pooled work transportation is convenient for all in that it lowers the amount of private vehicle usage. It greatly decreases a company's carbon footprint as a consequence of being environmentally-friendly. It is more cost-efficient for the organization since it does not have to budget for separate transportation for each employee. Employee-sponsored transit is a highly profitable opportunity for both private workers and employers. Owing to these reasons, the nation is seeing an unprecedented rise in corporate commuting service providers who provide unparalleled travel facilities for workers who come to work from far off places. The increasing availability of employee commuting facilities would allow businesses to stay on top of their competitiveness and performance.

VI. Findings:

India has been experiencing a growing demand for Corporate travel and Transport has a new technology to solve this with their RAPID product line.

Traveling in buses, cars or cabs in these countries may be dangerous due to lack of transport networks.

Automated transit services benefit both businesses and consumers by reducing traffic congestion.

Companies who offer personalized transportation to their employees see huge productivity benefits.

Companies who want to keep additional employees can use the fact that they have long commutes as a recruitment tactic.

Several people living in more rural areas is unwilling to start their own businesses owing to a shortage of transportation options.

Employees who expend less hours commuting report more physical health and fewer sick days.

VII. Conclusion and Future Prospective:

Commuter benefit programs vary in scope, so employers can design programs according to their desired level of involvement and the special needs of their workforce. Programs can range from informal initiatives that encourage workers to set up shared ride options to highly structured programs managed by designated staff. At any level, offering commuter benefits enables the company to positively influence the employees' travel choices, promote a more productive work environment, improve employee retention, and demonstrate a commitment to cleaner air in the community.

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