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Centre for Transportation and Logistics

INDIAN INSTITUTE of MANAGEMENT AHMEDABAD

NEWSLETTER

April - June 2025

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CTL Thought Article

Upcoming global practices employed to optimise last-mile deliveries

The rapid expansion of e-commerce and quick-commerce segments has significantly accelerated consumerism, favoured economic growth, and fulfilled consumer needs. Between 2014 and 2020, global parcel deliveries witnessed an exorbitant growth rate of 305%, reaching 131 billion parcels (Kim et al., 2024). Further, the global e-commerce market is expected to witness a growth from 16.6 trillion dollars in 2022 to about 71 trillion dollars by 2028 at an annual growth rate of 27.43% (*E-Commerce Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028,* 2023).

While e-commerce offers hassle-free doorstep deliveries, the accompanying environmental and social costs pose pressing issues that demand immediate attention. Some of them include the proliferation of delivery vehicles resulting in escalated levels of traffic congestion, rising carbon emissions and fuel costs, and adverse impact on corporate profit margins. Moreover, the global fleet of delivery vehicles in about 100 cities is expected to grow by 36% by 2030, causing a 32% increase in emissions from delivery traffic and 21% heightened congestion, resulting in an excess of 11 minutes daily commute time per passenger (World Economic Forum, 2020). The rise in congestion negatively impacts the economic output, as exemplified by Bangalore, where traffic congestion alone costs the city 5% of its economic output. This is bothersome in a country like India, where the annual number of deaths due to traffic alone is 1,20,000 (*To Reduce Traffic Congestion, India's Cities Can Learn from Its Businesses | Smart Cities Dive,* n.d.).

Consequently, it has become essential for companies to prioritise reducing last-mile delivery costs, as they account for approximately 41% of their overall logistics expenses ("How IoT Is Transforming Last-Mile Delivery for the Better," 2023). Moreover, given the increasing demand for urban logistics, it is crucial for companies to establish a balance between profitability and sustainability, ensuring that their economic interests align with the urgent need for sustainable urban logistics practices. Contextually, this article discusses upcoming global practices that organisations employ to optimise last-mile deliveries.

1) Route Optimisation

With the help of IoT and vehicle telematics, route optimisation methods can potentially identify less congested routes for delivery agents. These methods analyse historical traffic patterns and identify peak delivery times in an attempt to mitigate the risk of accidents while ensuring timely deliveries. Vehicle telematics can independently reduce fuel costs by 7.5% and concurrently enhance productivity by 10% (*Reduce Costs & Emissions with Idle Time Reduction Using Telematics,* 2023). Simultaneously, optimised logistics routing cuts transportation costs by 20-30% and boosts delivery efficiency by 15%, generating substantial operational improvements (Choudhary, 2024). By leveraging these methods, companies can avoid heavy traffic congestion, especially during seasonal buying booms. Furthermore, studies suggest that optimised routes lead to a reduction in distance travelled by 10%, fuel consumption by 11%, and greenhouse gas emissions by 10% respectively, every month (Karimipour et al., 2021), with a dedicated 40% reduction in carbon emissions associated with deliveries (Nair, 2024). DHL's Greenplan program employs a comparable algorithm that reduces processing time by 70% and realises up to 20% in cost savings by minimising travel distance, thereby decreasing the carbon footprint (*Why This Smart Route Optimization Is Making Logistics Greener,* n.d.). Likewise, United Parcel Service (UPS) has implemented an analogous approach, resulting in substantial annual reductions in distance travelled and fuel consumption, yielding savings of about 100 million miles in transit, 1 lakh metric tonnes in carbon dioxide emissions. Additionally, UPS also reaped a reduction of 10 million dollars in the operating expenses through this approach (On the Leading Edge: UPS 2017 Corporate Sustainability Progress Report, 2017). Similarly, Dunzo has reduced missed ETA commitments by approximately 14% by employing similar methods, which has contributed towards reducing the support calls by 90% (Bharadwaj, 2021).

2) Use of Electric Vehicles

Concurrently, the rise in deliveries causes about 30% of the CO2 emissions in a city (*Last-Mile Delivery*, 2022), making it imperative to shift towards sustainable modes of transport for last-mile deliveries to cut carbon emissions. However, projections indicate a surge in last-mile delivery requirements, forecasting a 36% increase in delivery fleet sizes across the 100 most populous global suburban areas by 2030 (Sarma, 2021). Contextually, EVs have emerged as a strategic choice offering a compelling combination of environmental sustainability and economic advantages. Transitioning to electric vehicles can enable businesses to reduce maintenance costs by up to 30% or lower compared to traditional gasoline or diesel vehicles (*Last-Mile Delivery*, 2022). In an attempt to promote the same, the government of Maharashtra aims to reach a 25% target for EV adoption for fleet aggregators by 2025 (Janakiraman et al., 2023).

Moreover, Amazon has committed to having 1,00,000 EVs on the road by 2030 (*How Electric Vehicles Are Revolutionizing Last Mile Delivery*, 2024) while Flipkart aims for a 100% transition to electric vehicles by 2030. Similarly, Walmart has established a goal of operating an entirely electric fleet using 100% renewable energy to achieve zero emissions by 2040 (Sarma, 2021). Meanwhile, by 2020, IKEA had already achieved a 25% reduction in carbon emissions from its delivery fleet by employing EVs. In parallel, the Indian food delivery platform Zomato has been offering deliveries with net-zero carbon emissions since 2022. Additionally, the company has pledged to convert its entire delivery fleet to electric vehicles by the end of 2030 (*Zomato Organizes EV Bazaar to Drive Electric Vehicle Adoption Among Delivery Partners*, 2024).

3) Night-time/non-peak hour deliveries

On the other hand, shifting deliveries to less congested or non-peak hours reduces traffic delays while effectively mitigating congestion and lowering carbon emissions. Moreover, implementing night deliveries can further streamline the process. Incentivising deliveries during non-peak hours can enhance these advantages and positively impact profit margins. Cities in the EU like Barcelona, Dublin, and Stockholm are already piloting night-time delivery programs. (Forkert & Eichhorn, n.d.) document the benefits of night-time delivery systems in urban environments in these cities. It emphasises that by typically operating between 10:00 PM and 7:00 AM, these systems utilise fewer, quieter, and larger trucks to deliver goods since the city traffic is minimal. In Barcelona, the night delivery program successfully replaced 7 daytime trucks with just 2 larger trucks operating at night, resulting in a monthly cost saving of 6,000 EUR. Additionally, the trial reduced the workforce employed compared to daytime operations, leading to its expansion to 140 supermarket outlets across Spain. Beyond logistical benefits such as faster travel times, optimised use of vehicles and workforce, and reduced delays, environmental benefits like reduced fuel emissions are also yielded.

4) Community safe lockers

Meanwhile, community lockers and safes offer an innovative solution to streamline last-mile deliveries. By providing secure, centralised drop-off points, these systems enable successful first-time deliveries even when recipients are absent. This substantially minimises delivery agents' time and effort by reducing individual residence visits and eliminating return trips for undelivered packages due to customer absence.

Notably, India's e-commerce platforms depicted a Gross Merchandise Value of 60 billion US dollars in 2023, resulting in a 22% increase from the previous year (IBEF, 2024). Parallelly, in New York, 80% of the households receive one delivery weekly, whereas 20% of households receive 4 or more deliveries weekly (*NYC DOT to Launch Initiative to Cut Down on Package Thefts and Reduce Negative Environmental and Safety Impacts of Truck Deliveries*, 2023). In order to address this rising demand, implementing strategies that expedite a higher success rate of first-time deliveries has become imperative. A Seattle-based trial of delivery lockers demonstrated substantial efficiency gains, reducing

residential wait times for delivery vehicles by approximately 33% and cutting overall delivery durations by nearly 78% (*Mayor Adams, DOT Commissioner Rodriguez Launch LockerNYC To Combat Package Theft*, 2024). Similar community lockers are found in various locations, including Brooklyn, Queens, and Manhattan. On the other hand, China's Alibaba utilises facial scanning for pickups to ensure the security of the parcels (*How Parcel Lockers Are Transforming Last-Mile Delivery Today | DHL Logistics of Things*, 2023).

Furthermore, consumers in Finland save up to $5 on pickups compared to home deliveries, resulting in nearly 70% of all e-commerce deliveries being picked up from parcel lockers (*How to Achieve Effective Parcel Locker Deployment*, 2023). While such options are prevalent in India, such as Amazon pickup stores and India Railway pickup points, the use of such methods is relatively scarce. Thus, attaching monetary benefits to pick-up delivery options in India becomes critical to witness the model's success. For instance, Poland's Automated Parcel Machine (APM) pickups are 25% cheaper for merchants than home deliveries. This is exemplified by Poland's 43% of its parcels going through 20,000 APMs (*How to Achieve Effective Parcel Locker Deployment,* 2023). Moreover, in Poland, courier-service parcel lockers can handle 600 parcels daily, covering approximately 70 kilometres, compared to 60 parcels and 150 kilometres in a traditional delivery system (Glasco, 2018).

5) Reserved Parking spots

Further, studies indicate that an average driver spends nearly 18-20 minutes in cities looking for a safe parking spot (Lakhotia, 2020) amounting to nearly 30% of urban traffic (Hiner, 2023). A 2006 Los Angeles' Westwood Village analysis found extensive environmental costs from cruising vehicles, highlighting that in a 15 block area, cars drove over 9,50,000 miles searching for a parking spot annually, leading to a wastage of 47,000 gallons of fuel and emitting 730 tonnes of CO_2 (Lefkowitz, 2020). As these figures continue to rise, the associated significant environmental impact underscores the urgent need for solutions.

A plausible strategy could be reserving parking spaces in public areas for predetermined time limits, which can prevent wasted time searching for parking. This can allow delivery agents to have a designated parking location and duration, with additional charges imposed for time exceeding the allotted period. Moreover, it can alleviate the increasing congestion and emission levels. A Spain-based study focused on employing parking management technology, which uses a Parking Information System (PIS) that guides drivers on where available parking spots are in real-time. The study revealed that the number of unsuccessful attempts to find parking spots before locating a final parking space decreased substantially by 55%. This resulted in a 37% reduction in particulate pollutants that are released into the atmosphere. (Rodríguez et al., 2024). Concurrently, Shimla is deploying a similar technology that shall provide real-time availability of parking spots in the city in an attempt to curb congestion and reduce carbon emissions (*Shimla Launches Its Innovative Smart Parking Project with Leading Smart Mobility Solution Cocoparks – ICLEI South Asia,* 2024). Likewise, Ernakulam district in Kerala is studying 51 parking slots before employing a similar technology (*In Kerala, Mobile App to Allow Users to Reserve, Pay for Parking Spaces*, 2024). However, its application must proliferate on a larger scale in multiple cities to reap heightened benefits.

6) Crowdsourced deliveries

Alternatively, crowdsourced delivery optimises supply chains by employing independent local contractors with personal vehicles for last-mile logistics. This enhances successful first-time deliveries, thereby alleviating missed deliveries. It lowers re-delivery costs and improves profit margins by minimising fixed infrastructure expenses. Moreover, it allows companies to scale their delivery capacity in response to fluctuating demand without maintaining a large, permanent fleet. A study based in Alexandria, Virginia, elucidated that by employing crowdsourcing methods, retailers could reduce their truck driving distance by 57%, saving them around $8600 daily on delivery costs. Additionally, it can reduce harmful pollutants from delivery trucks, like nitrogen oxides and particulate matter, by almost 55% (Devari et al., 2017).

Corroborating with the same, a study based in Melbourne, Australia, revealed that crowdsourced delivery could cut CO2 emissions by 44% compared to traditional delivery methods (Ghaderi et al., 2022). As of 2028, 90% of retailers are expected to shift to crowd-sourced delivery methods to reap the associated benefits (Khattar, 2021). Globally, many companies like Uber Eats, InstaCart, Amazon Flex, Target, and Walmart have employed this method. While in India, Dunzo, Swiggy, Zomato, and others have leveraged the same. Despite advancements, significant untapped potential exists in this segment in the context of India.

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The article has been written by

Ms. Jesal Tejwani

Research Associate, CTL IIMA

CTL Webinar

Unlocking Research Potential with NLDS: Exploring Data Sources and Opportunities in Logistics

The Centre for Transportation and Logistics, IIMA, hosted a webinar on 'Unlocking Research Potential with NLDS: Exploring Data Sources and Opportunities in Logistics' by **Mr. Arvind Devaraj**, Chief Operating Officer, NICDC Logistics Data Services Limited (NLDSL), on June 04, 2025.

The webinar was moderated by **Prof. Debjit Roy**, Professor of Operations and Decision Sciences and Co-Chairperson of the Centre for Transportation and Logistics at IIMA.

Talk Summary

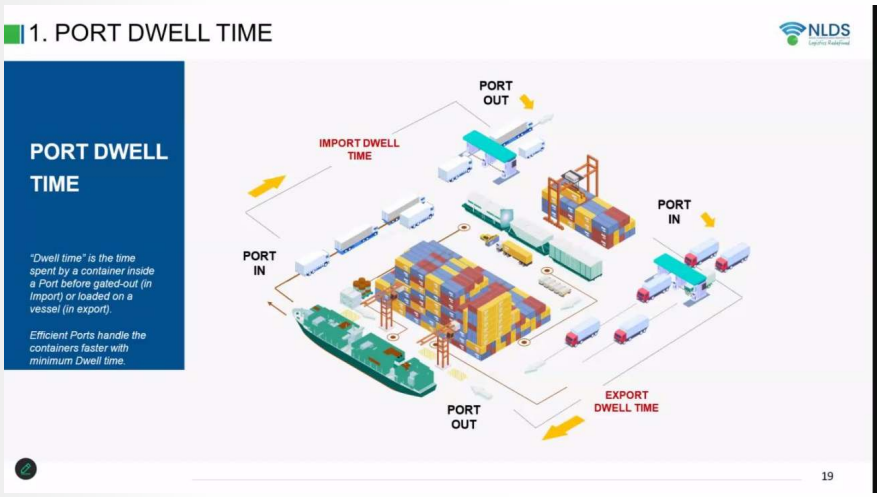
The webinar provided a detailed overview of NLDS data platforms, covering Logistics Data Bank (LDB), Unified Logistics Interface Platform (ULIP) & Track your Transport Mobile Application (TYT).

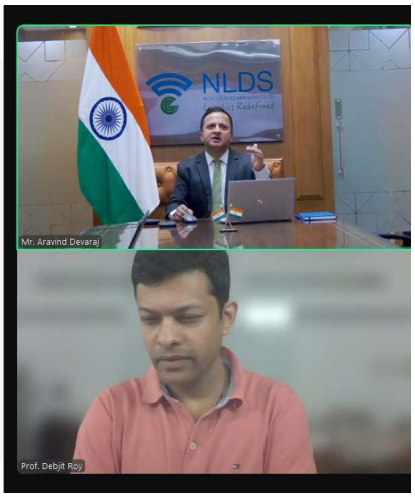
He introduced NICDC, which operates the NLDS platform, a rich repository of logistics data, with strong potential for academic research & policy analysis. He provided an overview of Logistics Data Bank (LDB), a nationwide single window, cloud-based logistics solution for EXIM container visibility & RFID technology for end-to-end tracking system across Ports, ICD/CFS, Toll Plazas, Railway Stations, International Borders & Industrial Zones.

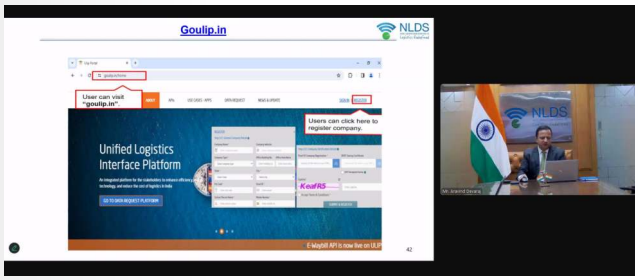
LDB operates through robust data integrations with systems like the PCS, FOIS & TOS. The sanitized and analyzed data is made available to stakeholders via performance dashboards. LDB has also vastly improved Logistics Performance Index (LPI) & Ease of Doing Business (EoDB). LDB extensively covers major industrial nodes & routes, providing coverage across 18 ports, 185 Toll Plazas, 490+ CFS/ICD & 89 Manufacturing SEZs. Its insights are used for benchmarking logistics infrastructure & identifying bottlenecks, thereby facilitating data-driven government interventions & multi-agency collaboration. Some of the KPIs that help in developing new use cases of LDB consist of Port Dwell Time, Container Delivery Time, Transit Speed, Port Gate Congestion & Container Turn Around Time. The upcoming LDB 2.0 aims to provide export journey global map, tracking predictive movements.

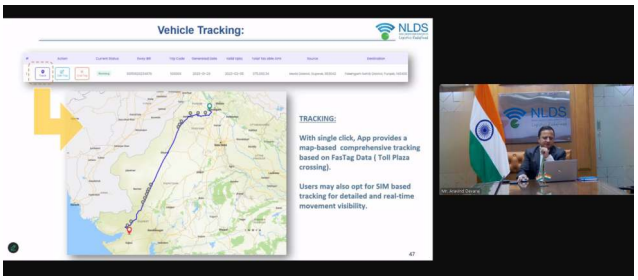
Further, Mr. Devaraj elaborated on ULIP developed as a part of India's National Logistics Policy. ULIP aims to unify logistics-related data through a single interface, integrating information from over 11 ministries, 43 systems & 129 APIs across 2,000+data fields. Over 1,270 use cases have been submitted, 168 applications developed through ULIP data, spanning areas such as traceability, gate automation, sustainability & process digitization. Finally, he presented Track Your Transport, ULIP-based application tailored for single & small fleet operators that offers real-time vehicle tracking.

The webinar ended with a discussion on possible avenues for collaboration between academia, industry & NLDS. Prof. Roy & Mr. Devaraj discussed how introduction of an academia-focused portal providing sample data sets can help researchers in developing foundational & GenAI/Agentic AI models based on the rich data provided by NLDS.









Panel Discussion

Driving Towards a Greener Future: Alternative Fuel Technologies in Commercial Vehicles

The Centre for Transportation and Logistics, IIMA (CTL), organized an online panel discussion on 'Driving Towards a Greener Future: Alternative Fuel Technologies in Commercial Vehicles', on April 28, 2025.

The distinguished panel featured :

- **Professor David Cebon**, ScD, FREng., Professor of Mechanical Engineering, University of Cambridge

- **Dr Venkat Srinivas**, Business Head – Mahindra Trucks & Buses, Construction Equipment, Mahindra Group

- **Mr Rajesh Khanna**, Head - Trucks - Product Planning Group, Tata Motors

- **Mr Rohan Shravan**, Ex CEO, Tresa Motors

The discussion will be moderated by Prof. Debjit Roy, Professor, Operation & Decision Sciences and Co-Chairperson, CTL.

Talk Summary

Prof. Roy began the session by providing an overview of the trucking sector, the role of alternative fuels in emissions reduction & introducing the speakers.

Dr. Venkat Srinivas elaborated on the technological benefits, the prevailing challenges, & the enablers for ICEVs, hydrogen fuel, & EV trucks. He further addressed cost-related challenges to facilitate wider EV adoption. He emphasized on investing in R&D of EVs while ensuring the development of emissions-efficient ICEV technology as well.

Mr. Rajesh Khanna noted that phasing out diesel trucks is challenging, making it essential to coexist with alternatives. He emphasised that future truck sales would become more of consultative projects wherein the fuel would depend on the consumer's usage: freight type, daily kms, etc. Moreover, the entire ecosystem surrounding EVs, including the charging infrastructure, cost of acquisition, & initial battery advancements, would require attention.

Prof. David Cebon highlighted that while vehicle engineering and logistics improvements are necessary, they are insufficient to meet Net Zero targets without shifting to alternative fuels. However, the identification of the most efficient alternative fuel was posed as a critical question. Contextually, the challenges surrounding the application of biofuel & hydrogen vehicles were discussed, but considered impractical in the long run, making EV trucks a sustainable long-term option. He emphasized that complementary efforts to reduce battery costs would lower the purchase cost and accelerate EV adoption. Moreover, he highlighted India-specific challenges in electrification of trucks.

Mr. Rohan Shravan emphasised on the weak integration of EVs within the market. He highlighted that reliance on imported components hampers innovation within India. High purchase price of EVs, lengthy amortisation period for OEMs & distributor monopoly further reduce the incentive to purchase an EV alternative. Therefore, it becomes essential to implement a vertical integration strategy that involves manufacturing components in India. Finally, he discussed the higher cost of hydrogen vehicles compared to ICE & EVs.

Prof. Roy concluded by providing key takeaways from the session. He highlighted the emphasis laid on:
- Leveraging data to optimize ICEVs & reduce tailpipe emissions.
- The importance of customer segmentation & developing tailored business cases.
- The need to evaluate capital versus operating costs to achieve TCO parity, minimize time & mass penalties for EV adoption.
- Focus on vertical integration & localization to build effective sales channels.

CTL Snippet

E11: Understanding the Journal Submission Process

Interaction with Prof. Shashank Rao, Jim W. Thompson Professor of Supply Chain Management at Auburn University and Associate Editor for the Journal of Business Logistics

Prof. Shashank Rao offers a comprehensive overview of the academic journal submission process, aimed at helping researchers, particularly early-career scholars, to better understand the steps involved in preparing and submitting a manuscript for publication.

Prof. Rao provides a step-by-step walkthrough of the typical submission workflow, including insights into the various editorial stages a manuscript undergoes and the approximate timelines associated with each phase. He also discusses the key considerations when selecting a target journal, as well as the role and relevance of journal metrics for a scholar while targeting journals for submission. The discussion moves towards addressing common reasons for manuscript rejection and finally concludes with some practical recommendations by Prof. Rao to improve the likelihood of manuscript acceptance.

Click to watch: https://www.linkedin.com/feed/update/urn:li:activity:7343895180694990851 or scan

CTL Faculty Research

1. Rural Roads and Economic Development: Insights from India

Prof. Sandip Chakrabarti published a research paper in the Transport Policy journal titled '**Rural roads and economic development: Insights from India**'.

Abstract

Road connectivity is critical for socioeconomic development in rural areas. Unfortunately, significantly large proportions of rural populations worldwide, particularly in relatively lower-income countries, still lack access to all-weather roads. I leverage data from the first phase of India's Pradhan Mantri Gram Sadak Yojana (PMGSY) – the Prime Minister's Village Road Scheme – to analyze whether the provision of basic single-lane all-weather road links to previously unconnected rural habitations has led to growth in economic performance, specifically in the agriculture sector. I empirically investigate whether, all else equal, districts that made greater progress in rural road connectivity – in terms of km of new road constructed and the number of new habitations connected, relative to targets – over the first decade of the PMGSY experienced greater levels of growth in per capita GDP, overall and in the agriculture sector. Results show that new rural road development can indeed have a significant positive impact on per capita agriculture GDP growth; places with relatively lower baseline agricultural performance can benefit more. A series of OLS, Spatial Error, and 3SLS models confirm the reliability of estimated effects. In addition to demonstrating the positive economic impact of the PMGSY in India, specifically its contribution to growth in economic performance and productivity in the agriculture sector, this study underscores the economic rationale of rural road connectivity investments across the developing world.

To read the complete article, visit: https://doi.org/10.1016/j.tranpol.2025.04.023

CTL Faculty Case Studies

1. Building Resilient, Responsible and Responsive Diamond Supply Chains at Shree Ramkrishna Exports Pvt. Ltd.

Prof. Debjit Roy, along with Ms. Pooja Shrivastava, carried out a case study on '**Building Resilient, Responsible and Responsive Diamond Supply Chains at Shree Ramkrishna Exports Pvt. Ltd.**'

Abstract

Natural diamonds have long been associated with luxury and exclusivity. The global diamond supply chain is susceptible to socio-economic, technological, and geopolitical disruptions. Furthermore, the uneven distribution of diamond deposits across various countries increases the supply chain's vulnerability. How should traditional natural diamond firms sustain their business amidst these disruptions? Should they focus on producing lab-grown diamond manufacturing expertise or develop new retail channels to reach the end consumers? Which tools can effectively analyse the effects of long-term disruption on the performance of the supply chain? This case illustrates the dilemmas faced by business leaders and the strategies adopted by a family run business to navigate these challenges and develop a resilient, responsible, and responsive diamond supply chain.

To read the complete article, visit: https://cases.iima.ac.in/index.php/building-resilient-responsible-and-responsive-diamond-supply-chains-at-shree-ramkrishna-exports-pvt-ltd.html

2. Making Metro Rail Work in Developing Countries: Overcoming Ridership and Financial Management Challenges

Prof. Sandip Chakrabarti, along with Ms. Muskan Verma, carried out a case study on '**Making Metro Rail Work in Developing Countries: Overcoming Ridership and Financial Management Challenges**'.

Abstract

Against the backdrop of India's unprecedented investments in urban and regional rail-based mass transportation systems, this case introduces Ms. Anuradha Dey, the Managing Director (MD) of a major Metro Rail Corporation, who is leading a major metro rail construction program in a medium-sized city of India. Ms. Dey is committed to the flawless execution of the project with potentially large positive social and economic impacts in the metropolitan region. She is inspired by the central government's mission of expanding and improving India's metro rail networks. Given the experience of comparable projects, Ms. Dey is confronted with two key challenges. How to ensure that the system will generate adequate ridership as per projections? How to ensure that the system becomes financially sustainable and is able to generate adequate non-farebox revenue streams to supplement farebox income? Ms. Dey appoints a core team to explore efficient and effective ways to make the system a success. Ms. Dey embarks on a mission to evaluate various recommendations on ridership promotion and non-farebox revenue generation and develop a feasible plan to present to the Board.

To read the complete article, visit: https://cases.iima.ac.in/index.php/making-metro-rail-work-in-developing-countries-overcoming-ridership-and-financial-management-challenges.html

Thought Leadership

1. Managing Labour Shortages in Warehouses using Advanced Autonomous Forklifts

An opinion article titled '**Managing Labour Shortages in Warehouses using Advanced Autonomous Forklifts**' authored by **Prof. Debjit Roy**, along with CTO from ARAPL RaaS International LLC, Mr. Puneet Tiwari, was published in CXO Today on May 19, 2025.

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STORY

Managing Labour Shortages in Warehouses using Advanced Autonomous Forklifts

CXOtoday News Desk — 2 months ago

By Puneet Tiwari and Debjit Roy

Read more at: https://cxotoday.com/story/managing-labour-shortages-in-warehouses-using-advanced-autonomous-forklifts/

CTL Faculty Engagements

Prof. Sachin Jayaswal was a speaker at the fifth edition of the Large Scale Optimization (LSO) Summer School and Conference, held at the IEOR Department, IIT Bombay, which was conducted from June 16 to 21, 2025.

Prof. Debjit Roy's recent engagements include several distinguished conferences, expert talks, and academic accomplishments, as listed below:

1. Prof. Roy visited the BITS School of Management to conduct a seminar with the BITSoM faculty on April 10, 2025, where he presented his paper titled 'Picking the Best Bot: Collaboration Strategies for Humans and Bots in Order Pick Systems.'

2. The case on 'Chartered Speed and the Bus Rapid Transit System', co-authored by Prof. Roy, along with Mr. John Joy and Mr. Vaibhav Malhotra, has been featured among Ivey Publishing's Top 10 Bestselling Operations Management Cases for 2024–25. To know more: https://www.iveypublishing.ca/s/news/2024-2025-ivey-publishing-bestsellers-top-10-cases-in-every-discipline-MCIZITMFZFRBCTZPLB4NB4UJISD4

3. Prof. Roy conducted a session on 'Leveraging Digital Technologies for Dynamic Decision Making in Supply Chains' at the 15th International Conference on Excellence in Research and Education (CERE 2025) held at IIM Indore on May 02, 2025.

4. Prof. Roy delivered an insightful talk on 'Teaching and Research in the Production and Operations Management (POM) Domain' at IIM Vishakapatanam on June 16, 2025.

5. On June 19, 2025, Prof. Roy conducted a masterclass on 'Impact of AI on Business Operations', hosted by NASSCOM as part of their AI Pathshala series. The session delved into the role of AI in transforming the future of business operations and supply chain management.

6. He attended the 17th International Material Handling Research Colloquium organized by MHI: The Association That Makes Supply Chains Work at the Norwegian University of Science and Technology (NTNU), which was held between June 24-27, 2025. There, he presented his collaborative research with IIMA doctoral student Ms. Rashika Gupta, focusing on the impact of human-robot collaboration, routing, and order selection strategies in enhancing operational efficiency.

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विद्याविनियोगाद्विकास:

Centre for Transportation and Logistics

INDIAN INSTITUTE of MANAGEMENT AHMEDABAD

वस्त्रापुर, अहमदाबाद ३८००१५, भारत | Vastrapur, Ahmedabad 380015, India.

+91 79 7152 7022 ctl@iima.ac.in

https://www.iima.ac.in/faculty-research/centers/Centre-for-Transportation-and-Logistics