



Centre for
Transportation and
Logistics

INDIAN INSTITUTE OF MANAGEMENT AHMEDABAD

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QUARTERLY NEWSLETTER

OCTOBER - DECEMBER 2022

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Innovation in LCL (Less than a Container Load)

1. Message from Industry Expert

Innovation in LCL (Less than a Container Load) cargo management in Allcargologistics

As the post-pandemic era comes into existence, the entire world has woken up to the indispensability of the online world. Today, the new normal is all about shopping and operating online, which has thrown into the spotlight the long-considered backend aspect of the ecosystem – the supply chain. Supply chain or logistics is becoming a key differentiator for enhancing consumer experience. Businesses are working hard to optimise their supply chains to provide a quick and convenient experience to their clients and consumers. This increased focus has brought to the forefront, long-neglected supply chain challenges, such as procurement constraints, port congestions, inventory shortages, and delivery delays, among others.

Many of these challenges are compounded by a pervasive lack of supply chain ingenuity and visibility. This can partly be assigned to the long and complex nature of logistics supply chains where every player and every stage need to be at an identical base level for servicing shipments effectively. The current global environment is leading big businesses to believe in the much-needed, imminent shift toward exploring innovative and emerging technologies to resolve prevailing challenges. Traditional logistics players are also adopting technology to remain competitive. However, the mere usage of digital technologies will not help as there is a need for a connected ecosystem that routes data in real-time through the cloud, for omnipresent supply chain visibility. To that end, Allcargologistics has built and deployed a single platform that delivers a one-stop solution to all logistics needs across the globe at the click of a button – coupled with delighting customers with our end-to-end visibility solution.

The ongoing accelerated digital transformation is an opportunity for the logistics industry to further strengthen its relationship with customers and pursue blue ocean value accretive opportunities beyond traditional shipping services. Digitisation not only improves the quality of service but also delights customers with the speed of execution. For instance, it would previously take two to three days for a company to receive a quote for shipping goods through LCL (less than a container load). Utilising the competency of technology, we have made this available in a few seconds at the click of a button. This self-serving platform is available to all our customers on-demand, anytime, and anywhere through the ECU360 app.

Digital transformation is a remarkable journey, with the potential to change the fate of the entire industry. The logistics and maritime sector must approach this transformation by envisioning a model vision that integrates new technologies, capabilities, and mindsets into a traditional way of working, building a competitive advantage. Furthermore, traditionally the lack of innovation in the sector was due to multiple reasons, including regulatory oversight, cultural resistance, resistance to change, widespread adoption of differing legacy technology infrastructures, and lack of investment in modern IT systems and processes. Today, all that is changing for the good.

Disruptive technologies such as AI and Data Analytics have led to a paradigm shift in the logistics industry by becoming an enabler for value creation and operations optimisation, leading to the widespread adoption of technology. Data-driven decisions not only help in reducing costs but also aid in minimising financial and operational risks. The rise in business efficiency also leads to improved employee productivity. This has allowed the overall sector to efficiently serve its customers. The pandemic-led digital disruptions ensured that innovations that might have taken years to roll out were adopted very quickly, combining the power of data with technology. In the case of LCL shipments, minute details about the shipment, location, and estimated delivery time can be communicated to consumers. The traditional, siloed way of operations has given way to clear communication between various stakeholders. The real-time visibility has led to a transformational customer experience and reduced the cost of operations.

Digitisation has helped in real-time visibility and operations management, as well as other tedious processes such as documentation management, network optimisation, empty-container repositioning, cargo routing, forecasting, and pricing. Further, it has helped in improving the efficiency of commercial activities, including quote processes, dynamic pricing, and enhanced customer experience. LCL can now offer improved visibility across the ecosystem and help in cost optimisation. It can be positioned as an easier alternative, not only to full container shipping but also to airfreight. Furthermore, there is a requirement for broader and more sophisticated services, including final-mile solutions, door-to-door offerings, and bypassing traditional distribution centres. Thus, digitisation is all about transforming, reinventing, and innovating the core foundation of business by changing customer experience, and improving employee productivity by providing visibility into critical business aspects. Manual processes like self-serving shipment quotes have changed to digital, allowing employees across the workforce to collaborate seamlessly around all stages of the business.



Mr. Shashi Kiran Shetty
Chairman, Allcargologistics

Digitisation of rate, capacity, and allocation management has helped the logistics sector the most, as these transactional activities cannot be managed through legacy enterprise technology solutions. Digitisation has also led to making the quote process more responsive for customers, thereby helping the overall sector maximise operations through bookings that readily reflect available capacity using advanced analytics, artificial intelligence (AI), and machine learning. Most importantly, the data collected in this process can be further analysed and leveraged to grow operational efforts.

Thus, digitisation accelerated by the pandemic has catalysed a disruption across the logistics sector. It has brought transparency and visibility, thereby providing a superior customer experience. It has also helped logistics providers reduce costs and make processes more efficient through synchronised operations. Moving forward, there will be a crucial focus on innovation and relevant investments will be made to further accelerate the efforts for digital transformation. The goal is to transform the sector and make it agile for the new digital normal.

2. Academic Literature Review on LCL

The invention of the shipping container in 1956 by Malcolm McLean radically transformed the shipping industry that had maintained the status quo for a long time (Mayo and Nohria, 2005). According to the Technical Committee of the International Standards Organization, a container is a durable unit used for shipping which can be reused and used in different modes of transport. (Notteboom, 2022) listed multiple factors for the containerization of maritime transport like globalization of trade, liberalization of domestic markets and cost control pressure in supply chains forced by intense competition among others. (Rodrigue and Notteboom, 2013) attributed containers for the globalization of production and distribution through

the reconciliation of complex supply and demand relationships. (Coşar and Demir, 2018) credited containers for bringing efficiency in freight transportation by allowing automation in freight handling, mitigating damage in transit and facilitating intermodality in transportation resulting in reduced transit times and increasing economies of scale. Today, the success and failure of ports and companies are measured by the volume of cargo handled through containers. Containers act as a form of currency in intermodal freight transportation (Lievstad, 2022).

Less than Container Load (LCL) refers to shipments which do not require an entire container and hence are consolidated with other shipments to fill up the space in the container (Allcargo Logistics, n.d.). LCL shipments are used for small volumes and weights. LCL helps small and medium-sized businesses enter the global markets by avoiding the constraints of cargo size and risks of global shipping. Thus, they help in the internationalization of SMEs (Caiazza, 2016). Also, LCL shipments are usually fulfilled by freight forwarders as compared to FCL shipments which are serviced by shipping lines and carriers (Lin et al., 2021).

LCL has been a subject of interest for academicians. (Giao et al., 2020) identified the factors that affect customer satisfaction for LCL service consumers in Vietnam and their order of relevance by conducting a customer satisfaction survey in two phases. They also prepared a customer satisfaction index which used Cronbach's alpha, exploratory factor analysis and linear regression analysis for calculation. The authors found that service process and reliability are the most important factors affecting customer satisfaction. (Bertazzi et al., 2021) studied the single link shipping problem in Vendor Managed Inventory (VMI) approach to identify the most optimal mode between FCL (full container load), LCL and a combination of the two. The authors formulated a mixed integer linear programming model and demonstrated its computational complexity while presenting the Value of Integration of FCL and LCL/Air Freight shipments concept to demonstrate savings from the integration of LCL and FCL shipments. Their analysis revealed significant cost savings, both in transportation costs and inventory costs in the case of integration of FCL and LCL as compared to shipping via either FCL or LCL mode only.

(Shintani et al., 2019) explored the feasibility of combinable/ foldable containers in reducing container-related costs for businesses. Combinable containers are containers which can be transformed into TEUs and FEUs based on the volume of cargo. The authors modeled their research into a minimum-cost multi-commodity network flow problem to determine the costs involved in determining the fleet size of containers and managing empty containers. Their study shows that combinable containers help reduce costs when used with standard dry containers in case of directional trade imbalance between two regions. In the case of trade balance, combinable containers may become feasible only after present high exploitation costs are reduced through wider adoption and economies of scale. (Tan, 2017) proposed the deployment of LCL Export Platform (LEP) in China that uses blockchain technology for making LCL operations efficient. The author highlighted the efficacy of blockchain in reducing the players and layers involved in LCL operations and streamlining information sharing leading to lower operating and time costs. Blockchain can bring transparency to shipping operations, reduce middlemen in freight forwarding and speed transactions through greater visibility of information.



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Mr. Avi Dutt
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CTL Faculty Research Papers

1. Performance evaluation and optimization of design parameters for electric vehicle-sharing platforms by considering vehicle dynamics

Prof. Debjit Roy, Co-Chairperson published a research paper with Vishal Bansal, Deepak Prakash Kumar, Shankar Ram Coimbatore Subramanian titled "Performance evaluation and optimization of design parameters for electric vehicle-sharing platforms by considering vehicle dynamics".



Global adoption of electric vehicles (EVs) faces many challenges such as range anxiety, high cost of EVs, and inadequate charging infrastructure. EV-sharing platforms resolve such concerns by setting up an optimal configuration for charging infrastructure and optimizing the charging decisions for depleted EVs.

These platforms manage the vehicles' flow to different charging stations and decide when and to what energy level the depleted vehicles should be recharged. Station-based platforms are one of the mainstream vehicle sharing systems where the customer picks-up and drops-off the vehicle at the designated stations. If a vehicle's battery energy level falls below a threshold after completing the customer trip, it is charged either partially or fully at the charging station. This study addresses various operational and strategic decisions (such as the number of chargers, vehicle repositioning, and partial charging policy) for a one-way station-based EV-sharing platform using a stylized three-stage analytical framework. They use vehicle dynamics to model the EV powertrain and regenerative braking under different traffic conditions and simulate them using AVL CRUISE™. The research model the platform operations using an open queuing network and provide a mixed-integer non-linear optimization program using inputs from the queuing network and vehicle dynamics simulation. They also provide a bound-based heuristic to solve this NP-hard optimization problem. The research findings generate various managerial insights for an efficient implementation of the partial charging policy for EV-sharing platforms. The increase in the partial charging probability (the fraction of depleted vehicles charged partially) reduces the effective charging demand, resulting in fewer chargers and a higher profit. On the other hand, if we increase the target battery energy level for partial charging, the platform's profit decreases due to higher effective charging demand dominating the benefits of lower charging frequency of vehicles.

Find out more at: <https://www.sciencedirect.com/science/article/pii/S1366554522002502?via%3Dihub#>

2. Compact living or policy inaction? Effects of urban density and lockdown on the COVID-19 outbreak in the US

Prof. Sandip Chakrabarti, Co-Chairperson published a research paper with Prof. Andy Hong, Assistant Professor, Department of City & Metropolitan Planning, University of Utah titled "Compact living or policy inaction? Effects of urban density and lockdown on the COVID-19 outbreak in the US".



The coronavirus pandemic has reignited the debate over urban density. Popular media has been quick to blame density as a key contributor to rapid disease transmission, questioning whether compact cities are still a desirable planning goal. Past research on the density–pandemic connection have produced mixed results. This article offers a critical perspective on this debate by unpacking the effects of alternative measures of urban density, and examining the impacts of mandatory lockdowns and the stringency of other government restrictions on cumulative Covid-19 infection and mortality rates during the early phase of the pandemic in the US. Our results show a consistent positive effect of density on Covid-19 outcomes across urban areas during the first six months of the outbreak. However, we find modest variations in the density–pandemic relationship depending on how densities are measured. We also find relatively longer duration mandatory lockdowns to be associated with lower infection and mortality rates, and lockdown duration's effect to be relatively more pronounced in high-density urban areas. Moreover, we find that the timing of lockdown imposition and the stringency of the government's response additionally influence Covid-19 outcomes, and that the effects vary by urban density. We argue that the adverse impact of density on pandemics could be mitigated by adopting strict lockdowns and other stringent human mobility and interaction restriction policies in a spatially targeted manner. Our study helps to inform current and future government policies to contain the virus, and to make our cities more resilient against future shocks and threats.

Find out more at: <https://journals.sagepub.com/doi/10.1177/00420980221127401>

3. Modeling landside container terminal queues: Exact analysis and approximations

Our CTL faculty and Co- Chairperson, Prof. Debjit Roy published a research paper with Dr. Jan-Kees van Ommereen, Dr. René De Koster, Amir Gharegozli, Ph.D. titled "Modeling landside container terminal queues: Exact analysis and approximations".



With the growth of ocean transport and with increasing vessel sizes, managing congestion at the landside of container terminals has become a major challenge. The landside of a sea terminal handles containers that arrive or depart via train or truck. Large sea terminals have to handle thousands of trucks and dozens of trains per day. As trains run on a fixed schedule, their containers are prioritized in stacking

and internal transport handling. This has consequences for the service of external trucks, which might be subject to delays. This study analyzes the impact of prioritization on such delays using a stochastic stylized semi-open queuing network model with bulk arrivals (of containers on trains), shared stack crane resources, and multi-class containers. The research project uses the theory of regenerative processes and Markov chain analysis to analyze the network. The proposed network solution algorithm works for large scale systems and yields sufficiently accurate estimates for performance measurement. The model can capture priority service for containers at the shared stack cranes, while preserving strict handling priorities. The model is used to explore the choice of different internal transport vehicles (with coupled versus decoupled operations at the stack and train gantry cranes) to understand the effect on delays. This study shows that decoupled transport vehicles in comparison to coupled vehicles can mitigate the external truck container handling delays at shared stack cranes by a large extent (up to 12%). However, decoupled vehicles marginally increase the train container handling delays at shared stack cranes (up to 6%). When train arrival rates are low, prioritizing the handling of train containers at the stack cranes significantly reduces their delays. Further, such prioritization hardly delays external truck containers.

Find out more at : <https://www.sciencedirect.com/science/article/pii/S0191261522000893?via%3Dihub#>



CTL Faculty Spotlight

The book titled “Intelligent Transportation Systems: Concepts and Cases” authored by Prof. Sundaravalli Narayanaswami and published by Cambridge Scholars Publishing, UK is out in the market.

Transportation-related challenges exist all over the world, with all countries struggling to develop efficient, effective and user-friendly transportation systems. Today, policy agencies and financing institutions are keen to invest heavily for potentially good transport systems, as good mobility is pertinent to social growth and a sustainable environment. Intelligent Transportation Systems (ITS) have become a global area of growth in recent times because of increasing demand for mobility, rampant urbanization, and depleting energy reserves. Existing conventional transport infrastructure fails to meet



Intelligent
Transportation
Systems
Concepts and Cases
Sundaravalli Narayanaswami

the ever-increasing demand; building additional transportation infrastructure is cumbersome, as it is time-consuming and capital-intensive and available land space is very limited. Therefore, there is a pressing need for innovative and locally relevant systems that can be built rapidly with less investment by leveraging advances in technology. Good ITS enable informed decision-making for all stakeholders.

This book presents the ingredients of good ITS, not from a technology perspective, but from a business administration, management, and policy perspective. The emphasis is on practice-oriented, impactful and context relevant systems. Short, real-life case studies are presented for each topic, to keep the discerning transportation enthusiast engaged.

Read here: <https://www.cambridgescholars.com/product/978-1-5275-9124-0/>



Major Events Organized

1. Practitioner Webinar

A practitioner webinar on “Net Zero Supply Chains” by Mr. Morten Bo Christiansen & Mr. Sanjay Vasudevan was held on October 21, 2022. This webinar was moderated by Prof. Sundaravalli Narayanaswami.



The graphic features a background image of a large white cargo ship at sea. On the left, there are two portrait photos of the speakers. The top photo is of Mr. Morten Bo Christiansen, and the bottom photo is of Mr. Sanjay Vasudevan. To the right of the photos, the event details are listed in a clean, modern font. At the top right of the graphic is the IIMA logo. Below the logo is the text 'Centre for Transportation and Logistics'. The main title of the webinar is 'Practitioner Webinar on Net Zero Supply Chains', followed by the date and time 'October 14, 2022 at 12.30 p.m. IST'. The moderator's name and title are listed below: 'Moderator : Dr. Sundaravalli Narayanaswami, Associate Professor, Indian Institute of Management Ahmedabad'. At the bottom right, there are social media handles for Twitter (@CTLatIIMA) and LinkedIn (centre-for-transportation-and-logistics-iima).

Centre for Transportation and Logistics

**Practitioner Webinar on
Net Zero Supply Chains**

October 14, 2022 at 12.30 p.m. IST

Moderator :
Dr. Sundaravalli Narayanaswami
Associate Professor,
Indian Institute of Management Ahmedabad

Mr. Morten Bo Christiansen
Senior Vice President,
Head of Decarbonisation
A.P. Moller-Maersk

Mr. Sanjay Vasudevan
Senior Director,
Global Head of
Key Client Management &
Sustainability
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The Climate Change 2022 report by the Intergovernmental Panel on Climate Change forecasts that transportation-related emissions need to fall by ~60% of the 2020 levels to achieve the Paris Agreement's goal of limiting global warming to 1.5°C. Also, growing regulatory tightening and increasing societal scrutiny has prompted worldwide freight operators to integrate sustainability measures in their operations to achieve net zero in global supply chains. While the electrification of inland transportation fleets has started, a breakthrough in technology is needed, which is scalable and not limited by energy density for the aviation and maritime shipping industry. Hydrogen has also emerged as a greener alternative for ship propulsion systems. However, it is more suitable for inland vessels and short-sea ships since green hydrogen production, transportation, and storage remain a challenge.



Currently, alternative non-fossil fuels like green methanol and ammonia are driving the shipping industry's transition to net zero, but scalability, financial viability, and concentrated supply chain pose a challenge. Countries like India and Brazil need to tap their methanol production potential to benefit from this transition from fossil to alternative fuels. A phased transition to net zero aligned with the Science Based Transition Initiative can help the sector decarbonize quickly. Collaborative efforts of various stakeholders will help adopt global best practices and knowledge sharing. Energy efficient freight carriers, digitalisation of processes and intensive research in scalable, sustainable and price-competitive green fuels can further accelerate the decarbonisation of global supply chains.

2. Research Webinar

A Research Webinar on “ Does Ridehailing Use Affect Vehicle Ownership or Vice Versa? An Exploratory Investigation of the Relationship Using a Latent Market Segmentation Approach” by Dr. Ram Pendyala was held on November 7, 2022.





Dr. Ram Pendyala
Professor (Transportation Systems)
Director,
School of Sustainable Engineering and
the Built Environment
Arizona State University



Centre for Transportation and Logistics

Research Webinar on
**Does Ridehailing Use Affect
Vehicle Ownership or Vice Versa?
An Exploratory Investigation of
the Relationship Using a Latent
Market Segmentation Approach**

November 7, 2022 at 06.30 p.m. IST

Moderator :
Dr. Sandip Chakrabarti
Associate Professor
Co-Chair, Centre for Transportation and Logistics
Indian Institute of Management Ahmedabad

 @CTLatIIMA

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This seminar presented an examination of the inter-relationship between household vehicle ownership and ridehailing use frequency. Both variables constitute important mobility choices with significant implications for the future of transport. While it is generally known that these two behavioral choices are inversely related to one another, the direction of causality is rather ambiguous. Do vehicle ownership levels affect ridehailing use frequency, or does the adoption and use of ridehailing services affect vehicle ownership? If ridehailing services affect vehicle ownership, then it is plausible that a future of mobility-as-a-service would be characterized by lower levels of vehicle ownership.



**Does Ridehailing Use Affect
Vehicle Ownership or Vice Versa?**
An Exploratory Investigation of the Relationship Using a
Latent Market Segmentation Approach

Ram M. Pendyala, PhD
Professor and Director
School of Sustainable Engineering and the Built Environment
TOMNET University Transportation Center
Arizona State University, Tempe

Webinar | November 7, 2022
Center for Transportation and Logistics • IIM Ahmedabad

ASU
Arizona State University

TOMNET Transportation Center
Tracing Our Mobility Future

To explore the degree to which these causal relationships are prevalent in the population, a joint latent segmentation model system is formulated and estimated on a 3500-respondent survey data set collected in four automobile-oriented metropolitan areas of the United States. The latent segmentation model system recognizes that the causal structures driving mobility choices of individuals are not directly observed. Model estimation results show that 58 percent of the survey sample follow the causal structure in which ridehailing use frequency affects vehicle ownership. This finding suggests that there is considerable structural heterogeneity in the population with respect to causal structures, and that ridehailing use does indeed hold considerable promise to effect changes in private vehicle ownership in the future.

To watch the webinar visit: <https://www.youtube.com/watch?v=pQ2YIIEAnpY>

3. Panel Discussion

Centre for Transportation and Logistics, IIMA had the pleasure of hosting a Panel Discussions on "Symbiotic Relationship between Transportation and Real Estate" on November 22, 2022.

Panelists:

1. Dr. Edward Coulson, Director, Centre for Real Estate, UCI Paul Merage School of Business
2. Dr. Anil Kashyap, President & Chancellor, NICMAR University
3. Mr. Loknath Nadar, National Head - Corporate Affairs, Welspun One Logistics Parks

Moderator:

Dr. Prashant Das, Associate Professor, Indian Institute of Management Ahmedabad



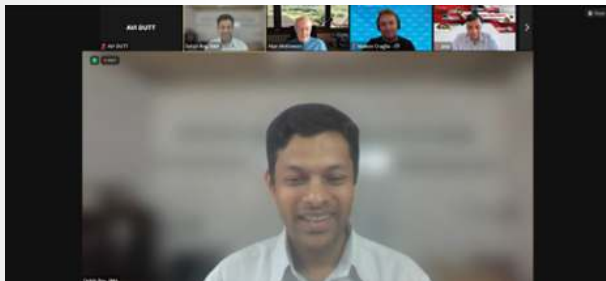
The panel discussion presented the views of the panelist on policy, financing and valuation of the deeply intertwined sectors of real estate and transportation. Talking about valuation, Prof. Coulson highlighted how accessibility to other locations plays an important role in determining the value of a piece of land. Transportation is an important factor in determining the quality of that access as it links the places of production, employment and consumption in the city. Privatization of transportation infrastructure like road networks as a policy measure has resulted in improvement in the efficiency of such networks. Prof Kashyap explained the concept of land value capture by giving an example of Greek levies on infrastructure projects. In the Indian context, Ahmedabad Ring Road and NCR's Western Peripheral Expressway are two examples of land value capture. Mr. Nadar highlighted the role of Mumbai Pune expressway in making Pune an IT and education hub. He also explained how transportation and accessibility plays a key role in deciding the location of a warehouse. Prof. Coulson described tax increment financing in the US wherein real estate developers combine and vote on being heavily taxed in return for public services like safety, sanitation and waste management. For transportation oriented TIF, he suggests efficient enforcement and revision of property tax which would eliminate the need for special land value capture instruments. The panelists listed down tools for financing infrastructure in India like land pooling, revenue bonds, pay as you go model and betterment/ development levies which differ based on public or private ownership of the project. The conflict among planners on reducing traffic through transit oriented development and increase in traffic resulting from land value capture projects was also discussed. The panel discussion also covered issues like urban mobility through drones, work from home phenomenon, relative efficiency of private versus public financing, sustainability in transportation planning, challenges due to burgeoning urban sprawl and potential of public private partnerships in infrastructure financing.

To watch the webinar visit: https://www.youtube.com/watch?v=GbKNg_i1Kfo

9th International SRF Workshop

The 9th Sustainable Road Freight Workshop on Resilient transitions to net zero freight transport systems spanned over three days from Dec 12 to Dec 14, 2022, to include various keynotes, paper and project presentations and breakout sessions.

The workshop started with a welcome note from Dr. V Kamakoti, Director, IIT Madras and Dr. Arnindam Banerjee, Dean of Faculty, IIM Ahmedabad. They reflected upon the urgent need to decarbonise the road freight sector and listed various efforts being made at institutional, organisational and government level in that direction.



The workshop involved keynote sessions from esteemed academicians and industry stalwarts like Prof. Alan Mckinnon, Prof. Gyongyi Kovacs, Dr. Jari Kauppila, Mr. Jalaj Gupta and Dr. Phillip Paige Greene, among others. They covered a diverse range of topics like carbon capture and storage in the freight sector, infrastructure adaptation measures, resilient systems and technologies, greening humanitarian logistics and corporate commitments among others.

The breakout sessions were chaired by Prof. David Chebon, Director, SRF, where participants were divided into different groups to interact and brainstorm on the likely impacts of climate change and ways to mitigate those efforts through policy, regulatory, economic, technological and organisational changes. The sessions helped participants gain deeper insights into different problems faced by the freight sector due to climate change and the overall impact of such events on local and global supply chains. The poster session on Day 3 was chaired by Prof. Yongyi Shou where eight posters were presented by the participants covering various aspects of road freight transport like customer perceptions, financing, carbon abatement, alternative fuels and technologies and human resources among others.



Multiple papers and projects were also presented by renowned scholars in different parallel tracks that were held. Parallel tracks on Day 1 were chaired by Dr. Phil Greening and Dr. Maja Piecyk. Papers on the role of e-highways in sustainable road systems deliberated on the ways to accelerate the electrification of road and fleet systems, and the costs involved in it. Another parallel on decarbonisation and carbon footprinting of road freight systems involved papers on literature learnings, simulation models and carbon mapping frameworks for tracking and reducing carbon emissions. Various emission factors were also presented.



Dr. Sandip Chakrabarti and Dr. Maja Piecyk were the chairs for parallel tracks on Day 2. Papers on e-highways continued to explore various facets of highway electrification. A case study on the UK was presented to float a national framework to assess electric road systems. Further, deliberations involved papers on cost. The other parallel on vehicle technologies and tyre management put the spotlight on the emissions potential of often overlooked non-exhaust sources like material particles. A paper on the contribution of sub optimal tyre configuration on carbon emissions was also presented while practicalities and road map for decarbonisation of the fleet were other points of discussion.

Parallel tracks on Day 3 were chaired by Dr. Chris de Saxe and Dr. Lori Tavasszy. The first parallel had papers on charging solutions and refuelling infrastructure. Papers on the circular charging ecosystem, different strategies for charging freight trucks and dynamic charging systems for heavy goods vehicles were presented in the track. The second track covered emerging challenges in multimodal, urban, digitalised and cold-chain logistics systems. Models on each of the elements using different approaches were presented in the track.

The Workshop Social under the chairmanship of Dr. Chris de Saxe provided an opportunity to the participants to interact with each other, discuss their ongoing works and look for opportunities of collaboration in their projects in order to bring speed and synergy in research being done to decarbonise the road freight sector.

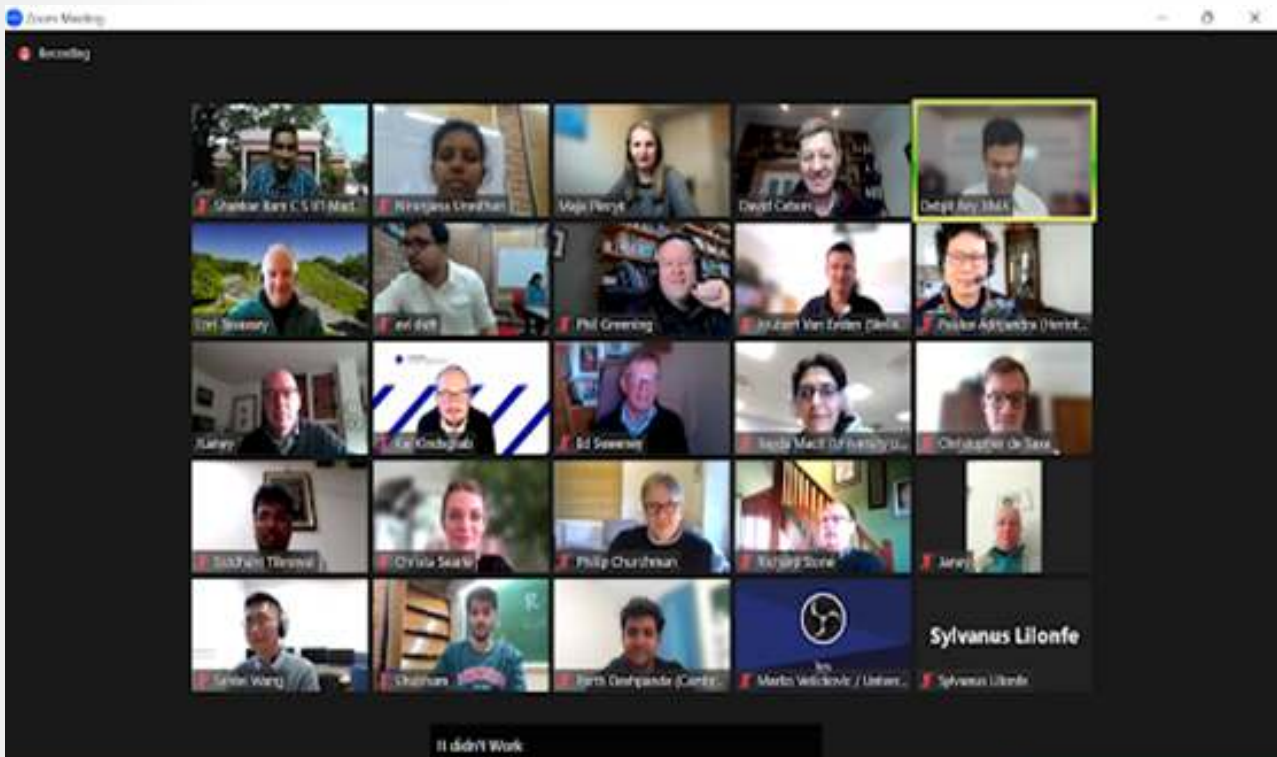
The closing remarks for the workshop were given by Dr. Debjit Roy, Co-Chair, Centre for Transportation and Logistics and Dr. Shankar Subramanian, Associate Professor, Indian Institute of Technology Madras.



Prof. Roy summarised the proceedings of the workshop, which covered the following broad topics-

1. The levers of road freight decarbonisation and sequestration potential in the road freight industry.
2. Key strengths, challenges and opportunities in the electrification of the road transport fleet, including risk management and cost estimation.
3. Impact of climate change on the logistics sector across corporate, national and international levels and possible action plans in mitigating these impacts.
4. Policy and regulatory requirements for facilitating the transition to net zero.
5. Building resilience in supply chains to overcome global systemic, regulatory and geopolitical challenges.
6. Novel frameworks and methodologies for assessing emissions from road freight, including non-exhaust sources like particle emissions.
7. Possible types of electronic road systems and their economic and technological viability.
8. Use of telematics, artificial intelligence and other digital technologies in decarbonizing the logistics sector.
9. Decarbonising through innovation in material and vehicle technologies like biofuels, tyre management and engineering solutions.
10. Challenges and opportunities in cold chain infrastructure.

Prof. Subramanian and other members of the International Scientific Committee acknowledged the valuable contribution of all the members of the organizing team and expressed hope of meeting everyone again in the next edition of the workshop.



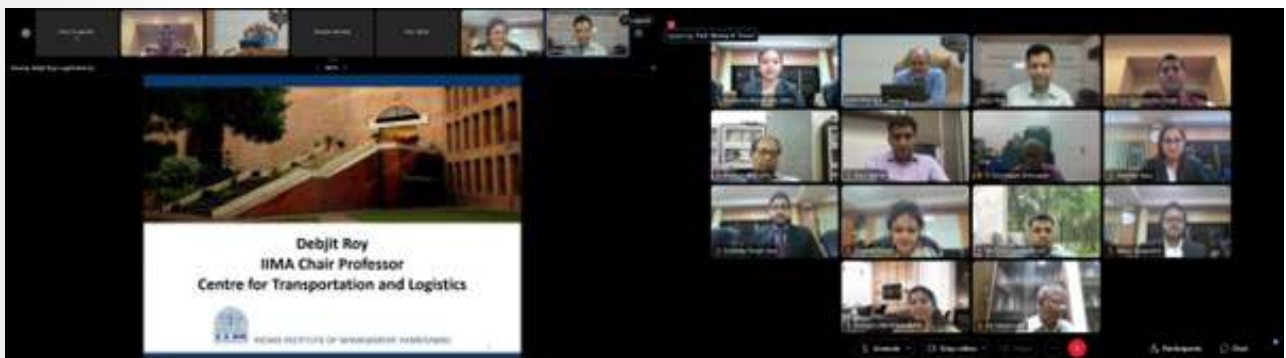
Transportation and Logistics Symposium

1. Prof. Debjit Roy, Co-Chairperson CTL spoke at the National Logistics Policy symposium organized by the Centre for Surface and Air Transport (C-SAT), Adani University. Prof. Roy joined other eminent speakers to discuss potential strategies important for effective implementation of national logistics policy.



2. To understand how the Gati Shakti scheme is adding pace to progress, National Institute of Industrial Engineering (NITIE) conducted a workshop with renowned experts from academia and industry on 4th November 2022.

The esteemed panelists; Prof. Debjit Roy, Prof. S G Deshmukh Prof. G Srinivasan, Mr. Ravi Jakhar, Prof. Biswajit Mahanty and Dr. Gaurav Singh gave wonderful recommendations and clear directions for the way forward.



3. POM India International Conference-2022 was held between December 21-23, 2022. It is a platform for academicians/ practitioners to come together to share and deliberate potential ways in which Operations Management as a discipline can be reimagined so as to contribute towards achieving a sustainable solution. Prof. Debjit Roy, delivered a keynote speech on "A Multi-Method Approach to Data-Driven Research in Operations".



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POMS INDIA INTERNATIONAL CONFERENCE 2022

December 21-23, 2022 | IIM Kozhikode

SPEAKERS-DAY 1
December 21, 2022



Prof. Anant Mishra
Carlson School of Management,
University of Minnesota



Prof. Arunachalam Narayan
University of North
Texas



Prof. Debjit Roy
Indian Institute of Management
Ahmedabad



Prof. Siddhartha S Padhi
Indian Institute of Management
Kozhikode

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Paper Presentation

Mr. Angshuman presented a paper titled "State capacity in humanitarian supply chains: Determining the government's role in managing natural disasters" at the 4th IPPN Annual Conference 2022, organized by the India Public Policy Network (IPPN) and the JSW School of Public Policy, IIM Ahmedabad on 13-14 December 2022. His work was presented to the conference panel on "State Capacity for Disaster Management and Humanitarian Response". The paper investigated the ongoing state-vs-private discourse in humanitarian supply chains, discussed the role of state capacity building and public investment in disaster management systems, and presented an FMCG-inspired hierarchical network-centric supply chain model as a robust mechanism to tackle the challenges and uncertainties of a natural disaster.



Mr. Angshuman Pal
Research Associate, CTL

Abstract

Humanitarian supply chains play a crucial role in mitigating the damage caused by natural disasters. They significantly differ from ordinary commodity supply chains on account of the intractable uncertainty and novelty of situations to which they cater to. Opinions are starkly divided on the role of the state in operating the humanitarian supply chains in a sovereign nation. On one hand, non-state entities such as NGOs, corporations, local relief entities, international humanitarian organizations seek involvement in aid operations primarily due to the financial scale and commercial attractiveness of the sector. On the other hand, state-led disaster management institutions seek administrative autonomy and comprehensive security for citizens by leading the relief efforts. This paper argues that the commonly discussed state-linked problems of shared accountability, horizontal externalities, and leakages due to governmental corruption are problems of inefficiency and poor implementation, and not systemic issues linked to structural inadequacies. There is academic evidence to show that public welfare expenses in immediate disaster relief mitigates long term social costs of recovery and brings down volumes of corruption. State involvement also contributes to operational efficiency due to larger scale of operations, reduced transaction costs ensuring direct utilization of funds, and higher asset utilization potential through resource fluidity and relaxations on earmarked funding. A coordinated, hierarchical network model is proposed which is inspired by commercial FMCG supply chain networks. The highlight of the model is a collaborative distributed network of aid entities, with centralized state-led decision making authority at higher echelons and gradually dispersed, decentralized autonomy down the network. This ensures the benefits of scale, resource mobilization, and greater risk capacity at the higher levels of the network, and the advantage of well penetrated local presence, regional awareness, and quick response time at the lower echelons.



Thought Leadership

Congratulations to Mr. Pranjal Chugh, Mr. Varun S Desai (PGPX students), Mr. Avi Dutt and Prof. Debjit Roy, Co-Chairperson CTL for the OpEd in the CNBC-TV18 titled "Multi-Modal Logistics Parks: What are the factors for successful implementation".

The article talks about the importance of MMLPs to bring down the logistics cost in the country. National Logistics Policy also underscores the importance of development of MMLPs for improved connectivity and efficiency. They suggested a multi-pronged approach focusing on financing mechanisms, stakeholder collaboration, sustainability, and single-window clearance mechanisms to ensure successful implementation of MMLPs across the country.



Mr. Pranjal Chugh



Mr. Varun S Desai

Multi-Modal Logistics Parks: What are the factors for successful implementation



8 Min(s) Read



By CNBCTV18.com Contributor

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Launched in 2017 under the Logistics Efficiency Enhancement Programme (LEEP) of the Ministry of Road Transport and Highways (MoRTH), MMLP has become the most important transformational multimodal project of the Indian Government.

Read more:

<https://www.cnbctv18.com/views/multi-modal-logistics-parks-what-are-the-factors-for-successful-implementation-15253391.htm>

Faculty Engagement

1. Centre for Transportation and Logistics, IIMA welcomes Prof. Maya Ganesh as CTL Member.

Centre for Transportation and Logistics Indian Institute of Management Ahmedabad

Welcomes Prof. Maya Ganesh as CTL Member

Prof. Maya Ganesh is an Assistant Professor of Operations Management in the area of Production and Quantitative Methods at IIMA. Her major research interests are in the area of public sector operations, socially responsible operations and food & agricultural supply chains, with focus on welfare benefit programs. She is currently working on projects related to impact of information, technology & digitization on performance of supply chains.

#CTLFaculty

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



2. Prof. T N Mazumder, Indian Institute of Technology Kharagpur visited CTL IIMA to explore the possibilities of collaborations.

Mr. Avi Dutt, Prof. T N Mazumder & Prof. Sandip Chakrabarti



**Centre for
Transportation and
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