Global Initiative of Academic Networks (GIAN)

BRINGING SYNERGY ACROSS DIFFERENT TRANSIT MODES IN INDIA BY ADDRESSING CHALLENGES FOR SUSTAINABLE TRANSPORT MODES

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MODULE 5

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COURSE MODULES

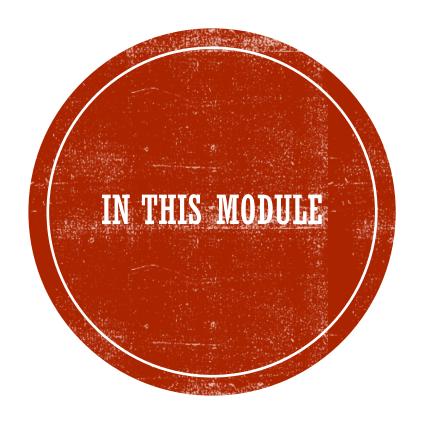|	
Introduction	• Public Transportation – An Introduction
Public transport data	• Background on data components useful for public transportation system analysis, their compilation and consistency analysis
Modeling approaches for public transit analysis	• Introduce traditional frameworks for public transit analysis – linear regression, discrete choice models (such as multinomial logit, ordered logit, and count models)
Emerging models for public transit data analysis	• Flexible discrete choice models (NL, ML, discrete continuous models) and machine learning models (KNN, RF, SVM, Decision Tress and Gradient Boost)
Integrating emerging modes with public transit	• Bringing it all together to leverage emerging modes and data analytics to improve public transportation across India

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IN THIS MODULE

In this module, we summarize the analytical approaches discussed and provide guidelines on moving forward in public transit analysis

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SWOT ANALYSIS FOR TRANSIT IN INDIA

Strengths

- Extensive Network
- Affordability
- Government Support
- Environmental Benefits
- Employment Generator

Weaknesses

- Overcrowding
- Aging infrastructure
- Lack of integration
- Service reliability
- Accessibility issues

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SWOT ANALYSIS FOR TRANSIT IN INDIA

Opportunities

- Technology Integration
- Urbanization
- Private Sector Participation
- Green Mobility
- Tourism Boost

Threats

- Rising Private Vehicle Use
- Funding Constraints
- Political Interference
- Climate Change
- Safety Concerns

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PILLARS OF TRANSIT ANALYSIS

Data compilation

Local expertise and knowledge

Analytical model development

Translation for application

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DATA COMPILATION

Significant resources need to be devoted to compiling data from different sources

- Public transit ridership data (potentially longitudinal)
- New system additions or modifications
- Emerging modes in the study region and their operational details
- Supplemental data on land use and built environment, transportation infrastructure and socio-demographics
- A good portion of the resources need to be invested here

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LOCAL EXPERTISE AND KNOWLEDGE

There is no substitute to institutional knowledge – of needs and aspirations for a system

- Work with stakeholders – local community organizations, employers and political office bearers – to identify system goals and needs
- Draw on expertise in transit operations across the study region for different modes and compile an overarching goal for the region
- Start early on this front and update stakeholders periodically to get buy in for potential changes in the future

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ANALYTICAL MODEL DEVELOPMENT

> We explored several approaches in this course that provide basis for analytical model development

- Identify the dimensions of interest
- Assess the data compiled
- Select appropriate model tools – traditional statistical models or newer machine learning models - based on data availability and stakeholder feedback
- Develop a training, testing and validation framework for your data analytics
- Build your models and finalize your results

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TRANSLATION FOR APPLICATION

Everything hinges on translation from models to application

- Stakeholder efforts will provide the necessary buy in to implement changes
- Consider incremental efforts to show value for transit agency
- Obtain regular feedback on modification from system users, operators and stakeholders
- Incorporate feedback to update the analysis as appropriate and update your proposed solutions

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BEST WISHES

Contact me if I can help

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