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# Data Fundamentals for Sustainable Mobility

A Free, 5-Week Video-Based Online Course

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Future Learn
Implemented by giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Supported by the Federal Ministry for Economic Cooperation and Development

# Data Fundamentals for Sustainable Mobility

**A Free, 5-Week Video-Based Online Course**

Learn how to measure and manage transport data to support the transformation of urban mobility systems in emerging cities. Through hands-on tutorials, international case studies, and conversations with leading experts. The course focuses on core disciplines including transport planning, traffic engineering, street design, and operations — equipping learners with the knowledge and tools to create more desirable cities through data-driven decision-making.

The course was developed through a collaboration between the Transformative Urban Mobility Initiative (TUMI) and Cities Forum, on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ).

| | |
|---|---|
| | **5** weeks (2-3 hours per week) |
| | **74** learning units |
| | **15** experts conversations |
| | **27** case studies from **17** countries |
| | **100%** free |

TUMI is founded by these partners:

tumi · CAF · ITDP Institute for Transportation & Development Policy · giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH · Federal Ministry for Economic Cooperation and Development

ADB · World Resources Institute · C40 Cities · KfW · UN-Habitat

ICLEI Local Governments for Sustainability · SLOCAT

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## What you will learn?

Transport Data Fundamentals for Sustainable Mobility is a free, 5-week, video-based online course designed to equip learners with the latest practices in transport data measurement and management.

Guided by the principle "what gets measured gets managed," the course covers both traditional and innovative methods for measuring and managing transport data, applicable to both private and public transport systems. Over the 5 weeks, participants will gain practical insights into the methods for collecting, processing, analyzing, and visualizing transport data across five core disciplines: transport planning, traffic engineering, street design, transport operations, and governance.

By the end of the course, participants will have the knowledge and tools to make data-driven decisions, enabling them to transform urban mobility systems and services, creating more sustainable and livable cities.

## Why join the course?

To help you find comfort in ever-increasing complexity, this course addresses the urban and transport challenges faced by emerging cities. Rapid population growth, economic expansion, and increased motorization often outpace institutional and resource capacities, leading to deficits in transport, housing, and social infrastructure, along with a wide range of negative externalities and data gaps.

Addressing these challenges begins with measuring and understanding them. Once we can qualify and quantify these issues, we can then effectively manage them using a variety of tools, frameworks, and solutions.

If you are eager to learn how to best measure and manage these complexities to create more sustainable and livable cities, this course is for you!

## Who the course is for?

This course is designed for a diverse audience interested in transport data within the context of emerging cities. It is tailored for transport practitioners from the public, private, and non-profit sectors, including public officials, consultants, academics, and NGOs. The modules are aligned with the five core transport-related disciplines: transport planning, traffic engineering, street design, transport operations, and governance.

No prior knowledge is required, though a basic understanding of sustainable urban mobility is beneficial.

| | |
|---|---|
|  | **Transport Planner** |
|  | **Traffic Engineers** |
|  | **Street Designers** |
|  | **Transport Operators** |

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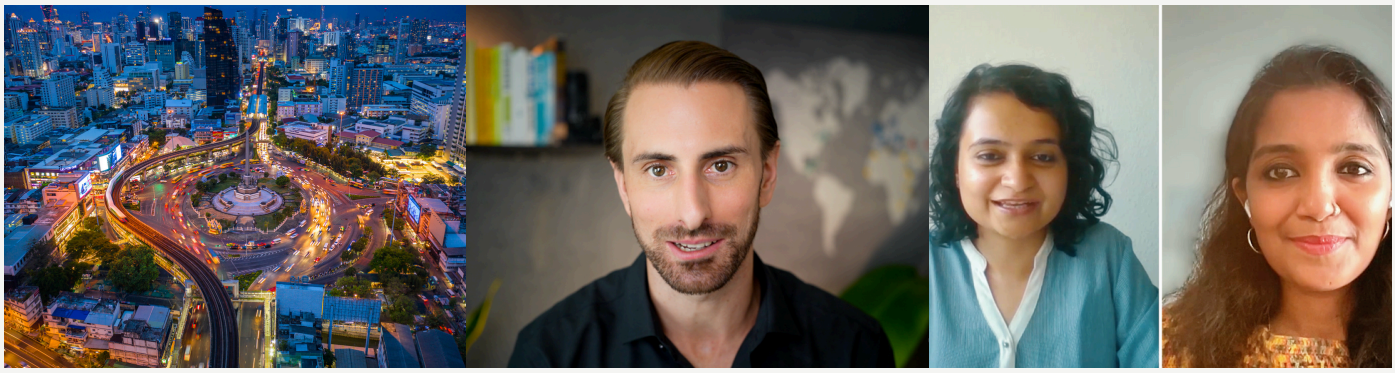
|---|---|---|
| 5-weeks | 2 -3 hours per week | Free certificate |

### How you will learn?

The course is hosted on the FutureLearn platform and is self-paced, consisting of 5 modules to be completed over 5 weeks. Each week requires an investment of 2 to 3 hours. Every module contains 12 to 20 units, each focusing on a different transport-related discipline:

- **Week 1:** Introduction to the Course
- **Week 2:** Transport Planning
- **Week 3:** Traffic Engineering
- **Week 4:** Street Design and Active Mobility
- **Week 5:** Transport Operations and Governance

Each week offers a mix of video content, including lectures, expert conversations, case studies, and tutorials, as well as articles and discussion forums. At the end of each module, you will complete a short multiple-choice quiz to assess your understanding. Achieving a score of 90% or higher will make you eligible for a TUMI course certificate.



| | | | | | | |
|---|---|---|---|---|---|---|
| Lecture videos | In-field case studies | Articles | Expert Conversations | Software tutorials | Forums | Quizzes |

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In total, the course features 15 expert conversations, 27 case studies from 17 countries, and 1 mapping tutorial.


| 21x Lectures | 15x Expert Conversations | 1x Mapping Tutorial | 27x International Case Studies |
|---|---|---|---|

## INTERNATIONAL CASE STUDY MAP


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## Who you will learn from?

With the support of TUMI and Cities Forum, the course is led by Conrad Richardson, a transport data specialist with over a decade of experience working on projects in 25 countries; Dr. Megha Tyagi, a global transport expert with more than 10 years of experience managing sustainable mobility initiatives; and Ed Ward, a senior instructional designer and award-winning scriptwriter with over 20 years of experience creating engaging online courses.



In addition, 15 international experts share their insights through dynamic conversations, offering learners a rich, global perspective on transport data and sustainable mobility.

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## Curriculum Overview

| Week | Part | Overview |
|---|---|---|
| 1 | Part 1 | **Introduction to the Course**<br>• What you will learn, How you will learn, Who you will learn from<br>• Transport characteristics of emerging cities |
| | Part 2 | **Introduction to Data**<br>• What is transport data?<br>• Why is transport data important?<br>• Identifying and filling data gaps |
| 2 | **Data Measurement and Management for Transport Planning** | |
| | Part 1 | **Transport Planning – Data Measurement**<br>• Transport Planning data types: historical and real-time, supply and demand<br>• Private transport data: Network data, OD Data, and other data<br>• Public transport: OD Data and GTFS data – from Mexico and Cambodia<br>• Public transport gender data – from Colombia and India |
| | Part 2 | **Transport Planning – Data Management**<br>• Introduction to transport planning data processing and modelling<br>• GTFS mapping tutorial – using QGIS<br>• Transport modelling BRT case studies – from Ahmedabad, India |
| 3 | **Data Measurement and Management for Traffic Engineering** | |
| | Part 1 | **Traffic Engineering – Data Measurement**<br>• Introduction to data for Traffic Engineering<br>• Collecting traffic counts using traditional methods (survey forms) – from Phnom Penh, Cambodia<br>• Collecting traffic counts using innovative methods (CCTV analytics) – from Phnom Penh, Cambodia |
| | Part 2 | **Traffic Engineering – Data Management**<br>• Introduction to traffic engineering tools and data processing methods<br>• Calculating emissions data from traffic counts |
| 4 | **Data Measurement and Management for Street Design and Active Mobility** | |
| | Part 1 | **Data for Design Streets for Walking**<br>• Introduction to data for street design – from Barcelona, Spain<br>• Tools for appraising and surveying streets – from Addis Ababa, Ethiopia<br>• Tactical urbanism for transforming streets – from Kuala Lumpur, Malaysia, and Baguio, The Philippines.<br>• Data for large scale street transformations – from Chennai, India |
| | Part 2 | **Data for Design Streets for Cycling**<br>• Introduction to Street Design for Cycling – from France<br>• Crowd-sourcing cycling data – from Colombia<br>• Tools for appraising cycling facilities (CycleRap) – from Manila, The Philippines |

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## Curriculum Overview

| | | |
|---|---|---|
| 5 | **Data Measurement and Management for Transport Operations and Governance** | |
| | Part 1 | **Data for Transport Operations**<br>• Introduction to Intelligent Transport Systems (ITS) – from Shenzhen, China<br>• Advanced Traffic Management Systems (ATMS) – from Bangkok, Thailand<br>• Advanced Public Transport Management Systems (ATMS) – from Hong Kong and Ho Chi Minh, Vietnam<br>• Introduction to Traffic Management Systems – from Baguio, The Philippines |
| | Part 2 | **Data for Transport Governance**<br>• Introduction to data governance and open data<br>• Open data platform case studies – from Singapore and Kampala, Uganda<br>• Future of Mobility selection of case studies |

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# Thank You!

# Register here

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