Arabian Institute For Training

Using Big Data for Road Network

INTRODUCTION

- This Using Big Data for Road Network training course is designed for the delegates wanting to leverage Big Data use and Big Data Analytics algorithms for the improvement of road networks, as well as for the future planning of road network maintenance, improvement and construction.
- In traffic and transport the data is generated by multiple sources, such as mobile phones, social media, mass transport systems, road survey systems, cadasters as well as many other. It can allow urban planners and road engineers to form an understanding of infrastructure systems that is critically important to both quality of life in local communities and successful economic competition at the international, national, regional, and local levels.

This training course will highlight:

- Principles of road network planning
- Road network data collection
- Big Data sources for road networks
- Big Data analytics methods for road network planning and control
- Preserving privacy in Big Data Analytics of road networks
- Personalized road network advisory platform
- Additional sources of Big Data in the road network

OBJECTIVES

By the end of this training course, participants will be able to:

- Identify the Big Data sources on the road network
- Learn the locations of data silos in their environment
- Acquire the insight into current projects of Big Data use in road network planning
- Learn the risk mitigation of data privacy issues
- Adopt the usage of digital twins of road networks
- Use the emerging and existing technologies to build foundations of Smart City

TRAINING METHODOLOGY

- The participants will receive thorough training on the topics covered in the course outline with the variety of proven adult learning teaching and facilitation techniques, with examples from multiple corners of the world. This Using Big Data for Road Network training course will also highlight the current ongoing initiatives in Big Data utilization in road networks and the creation of data lakes from existing silos of data.

ORGANISATIONAL IMPACT

- The organization will benefit from understanding the ways of Big Data Collection and Analysis for the road networks. The opportunities to merge their data silos into a single data lake where the data from multiple sources can be utilized for road network planning, maintenance and design.

The participants on this training course will:

- Enhance their analytical skills in the Big Data arena
- Learn how to recognize the silos of data
- Be able to unify the data silos into a data lake
- Introduce new technologies for road network monitoring without the need for significant investment
- Improve the road network serviceable life
- Organization will become adoptive to fast changes and be able to respond rapidly to the challenges

PERSONAL IMPACT

This training course will improve the participant's day-to-day work practices by:

- Identifying the opportunities of Big Data use in road network planning
- Learning how to use the data from available sources adequately
- Understanding how to improve data collaboration
- Learn how to unify data silos into a useful data lake
- Understand the issues of data privacy in road network planning
- Apply techniques of digital twin creation for the road networks
- Prepare for the future Smart Cities and Smart Environments

WHO SHOULD ATTEND?

- This Using Big Data for Road Network training course is designed for all the people involved in government policymaking, urban development, traffic and transport planning and organization, IT experts, as well as researchers and consultants.

This training course is suitable for a wide range of professionals but will significantly benefit:

- Project Managers
- Road and Transport Industry Representatives
- Professionals in Urban Planning
- Architects Involved in Urban Design
- Technology Engineers and Researchers
- Strategic Development Personnel
- Transport and Traffic Engineers
- Decision-making and Policy-making Government Officials

Course Outline

Road Network Planning Principles and Methods

- Land use for Road Network Planning
- Engagement of Community
- Planning at Local, Regional, National and Trans-national Levels
- Road Network Safety Issues
- Road Network Efficiency
- Environmental Impact

Introduction to Big Data in Road Networks

- Big Data Sources in Road Networks
- Existing Road Networks and Identification of their State
- Big Data Collection Techniques from Road Networks
- Data Silos in Institutions

Data Flows on Road Networks

- Traffic Flow Data
- Geolocalisation of Data for Road Networks
- Road Network Inventory Creation
- Third-Party Data Sources for Road Networks
- Identification of Maintenance and Improvement Options with Big Data Analytics

Preserving Privacy on the Road Network

- Data Privacy Issues
- Data Privacy Infringement from Geolocations
- Traffic Source Prediction from Big Data
- Privacy Analysis
- Distributed Computing Role in Privacy Preservation

Digital Twin of Road Network

- Introduction to Digital Twins
- Creating the Digital Twin of Road Network
- Using Digital Twins of Road Networks for Traffic and Transport Management
- Digital Twins for Improvement Evaluation Options
- Current Studies in the Region and the World

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