Strategic Planning for Smart City Data Infrastructure Training Course

14 - 18 Dec 2026

Madrid

5900 € (Per Person)

Ref: #DM6471_91659

Course Introduction / Overview:

This course provides a comprehensive exploration of the critical intersection between data infrastructure and modern urban planning. In an era where cities are evolving into complex digital ecosystems, a strategic approach to data is no longer optional but essential for sustainable growth, efficiency, and improved quality of life. Participants will delve into the foundational principles of smart city architecture, moving from core concepts to advanced implementation strategies. The curriculum is designed to equip professionals with the knowledge to design, deploy, and manage robust data infrastructures that support a wide range of smart city applications. As discussed by Anthony M. Townsend in his influential book, "Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia," the future of urbanism is inextricably linked to our ability to harness data effectively. This BIG BEN Training Center course bridges the gap between technological potential and practical urban governance, offering a roadmap for creating intelligent, responsive, and citizen-centric urban environments. It covers everything from IoT sensor networks and 5G connectivity to data governance, cybersecurity, and the ethical implications of large-scale data collection, ensuring a holistic and forward-thinking learning experience.

Target Audience / This training course is suitable for:

- Urban Planners and City Managers.
- IT Directors and Infrastructure Specialists in the public sector.
- Policy Makers and Government Officials.
- Technology Consultants specializing in smart city solutions.
- Project Managers overseeing urban development projects.
- Data Analysts and Scientists working with urban data.
- Civil Engineers and Architects.
- Telecommunications and Network Engineers.
- Public Safety and Emergency Services Commanders.
- Sustainability and Environmental Officers.

Target Sectors and Industries:

- Government and Public Administration.
- Urban Planning and Development.
- Information Technology and Services.
- Telecommunications.
- Construction and Civil Engineering.
- Energy and Utilities.
- Transportation and Logistics.
- Public Safety and Security.
- Environmental Services.
- Real Estate and Property Management.

Target Organizations Departments:

- Urban Planning and Development Department.
- Information Technology (IT) and Digital Transformation Department.
- Public Works and Infrastructure Department.
- Strategic Planning and Policy Department.
- Transportation and Mobility Department.
- Public Safety and Emergency Management.
- Utilities and Energy Management Department.
- Environmental and Sustainability Office.
- Data Analytics and Business Intelligence Unit.

Course Offerings:

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

- Develop a strategic framework for smart city data infrastructure.
- Evaluate various data collection technologies, including IoT and sensors.
- Understand the role of 5G, cloud computing, and edge computing in smart cities.
- Design robust data governance and privacy policies.
- Analyze urban data to derive actionable insights for planning.
- Implement cybersecurity measures to protect critical urban infrastructure.
- Manage smart city projects from conception to implementation.
- Foster public-private partnerships for infrastructure development.
- Apply data-driven approaches to improve urban services like mobility and energy.
- Assess the ethical implications of smart city technologies.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be immersive, interactive, and highly practical. We believe that adult learning is most effective when it combines theoretical knowledge with hands-on application. This course utilizes a blended learning approach, featuring expert-led presentations, in-depth technical discussions, and collaborative group activities. A significant portion of the training is dedicated to analyzing real-world case studies from pioneering smart cities like Singapore, Barcelona, and Seoul, allowing participants to understand successes and challenges in different contexts. Interactive workshops will challenge participants to design a data infrastructure plan for a model city, fostering critical thinking and problem-solving skills. Team-based exercises and peer-to-peer feedback sessions are integrated throughout the five days to encourage knowledge sharing and networking. Our trainers act as facilitators, guiding discussions and ensuring that the content is directly applicable to the participants' professional roles and organizational challenges. The focus is on building practical skills and strategic perspectives that can be immediately applied to drive smart city initiatives forward.

Course Agenda (Course Units):

Unit One: Foundations of Smart City Data Infrastructure

- Introduction to Smart Cities and Urban Digital Transformation.
- The Role of Data as a Critical Urban Asset.
- Key Components of a Smart City Data Ecosystem.
- Stakeholder Analysis and Engagement in Smart City Projects.
- Understanding the Smart City Technology Stack.
- Global Standards and Frameworks for Smart Cities.
- Case Study: The Evolution of a First-Generation Smart City.

Unit Two: Core Technologies and Connectivity

- Internet of Things (IoT) Sensor Networks for Data Collection.
- Connectivity Layers: 5G, LoRaWAN, and Wi-Fi 6.
- Cloud, Fog, and Edge Computing Architectures.
- Urban Data Platforms and their functionalities.
- Geographic Information Systems (GIS) in Urban Planning.
- Introduction to Digital Twin Technology for Cities.
- Assessing Technology Scalability and Interoperability.

Unit Three: Data Management, Analytics, and Visualization

- Big Data in the Urban Context: Volume, Velocity, and Variety.
- Data Acquisition, Cleansing, and Integration Strategies.
- Data Storage Solutions: Data Lakes and Warehouses.
- Predictive Analytics and Machine Learning for Urban Services.
- Data Visualization Techniques for Planners and Policy Makers.
- Developing Key Performance Indicators (KPIs) for Smart City Projects.
- Ensuring Data Quality and Integrity.

Unit Four: Governance, Policy, and Security

- Developing a Comprehensive Data Governance Framework.
- Data Privacy Regulations (e.g., GDPR) and their Urban Impact.
- Ethical Considerations of Urban Data Collection and AI.
- Cybersecurity Threats to Smart City Infrastructure.
- Building a Resilient and Secure Urban Data Network.
- Public-Private Partnership (P3) Models for Infrastructure Funding.
- Crafting Effective Smart City Policies and Roadmaps.

Unit Five: Applications, Implementation, and Future Trends

- Smart Mobility and Intelligent Transportation Systems.
- Smart Grids and Sustainable Energy Management.
- Data-Driven Public Safety and Emergency Response.
- Smart Buildings and Environmental Monitoring.
- Citizen-Centric Service Design and Digital Inclusion.
- Project Management for Smart City Initiatives.
- The Future of Urbanism: AI, Quantum Computing, and Autonomous Systems.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

As cities increasingly rely on data infrastructure, how can urban planners balance the drive for efficiency and innovation with the critical need to ensure data privacy, equity, and digital inclusion for all citizens?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by adopting a holistic, strategy-first approach to smart city development, moving beyond a purely technological focus. While many programs concentrate on specific tools or platforms, our curriculum emphasizes the critical integration of technology, policy, and people. We focus on building the strategic planning capabilities necessary to create sustainable, resilient, and equitable urban environments. The content is uniquely structured to bridge the knowledge gap between IT professionals, urban planners, and policymakers, fostering a common language and collaborative framework essential for successful smart city projects. Rather than just listing technologies, we delve into the "why" and "how"—exploring governance models, funding mechanisms through public-private partnerships, and the socio-ethical implications of data-driven urbanism. The course is rich with in-depth case studies of both successes and failures from around the globe, providing practical lessons and actionable insights. This strategic perspective ensures participants leave not just with technical knowledge, but with the comprehensive vision required to lead complex urban transformation initiatives effectively.