Academia for Smart City Chief Data Officers

SMART DATA OFFICER FOR SMART CITIES

Executive Curriculum Summary

CDOA – Academia for Smart City Chief Data Officers

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Become the Next Generation of Smart City Data Leaders

Cities are changing fast. Public transport, energy systems, climate adaptation, housing, public services and citizen participation are increasingly shaped by data, artificial intelligence and digital technologies. But technology alone is not enough. Modern cities need people who can understand data, interpret urban challenges, work with stakeholders and support responsible, evidence-based decisions.

This is where **CDOA – Academia for Smart City Chief Data Officers** comes in.

CDOA is an international Erasmus+ project created to prepare students, young professionals and future urban leaders for one of the most important emerging roles in smart city governance: the **Smart Data Officer / Chief Data Officer for cities**. The project connects universities, city experts, educational organisations and practitioners to develop a modern learning pathway focused on data-driven urban transformation.

What should you do next?

We invite you to take a closer look at the proposed structure of the CDOA training programme. Review the modules, learning topics and practical components to see how the programme connects urban governance, data, AI, GIS, smart city technologies and leadership skills.

Your opinion matters. After reviewing the programme, please complete a short evaluation survey (**the link to the survey**). Your feedback will help us improve the curriculum, make it more useful for students and ensure that the final training offer responds to real learning needs, career expectations and the challenges of modern cities.

The survey is short, but your input is highly valuable. By sharing your perspective, you are helping us shape a programme that can better prepare future smart city professionals.

CDOA is not only a training programme. It is an invitation to take part in the future of urban transformation. Review the programme, share your feedback, and help us design learning that matters.

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Programme Overview

The *Smart Data Officer for Smart Cities* programme was developed within the framework of the CDOA project as an interdisciplinary higher education curriculum addressing the growing importance of data-driven governance, digital transformation and AI-supported decision-making in contemporary cities and metropolitan regions.

The programme responds to increasing demand for professionals capable of connecting governance, analytics, digital infrastructure and organisational transformation within complex urban environments. Rather than focusing exclusively on technical competences, the curriculum approaches smart city development as a broader governance and institutional challenge requiring interdisciplinary understanding and practical problem-solving capacities.

The curriculum combines perspectives from:

- urban governance and public administration,
- urban data governance and interoperability,
- AI-supported analytics and evidence-based decision-making,
- GIS and smart city technologies,
- organisational transformation,
- collaborative governance,
- and sustainable urban development.

The programme was designed in line with:

- EFMD competence-oriented curriculum principles,
- Erasmus+ higher education priorities,
- European approaches to responsible digital transformation,
- and contemporary models of interdisciplinary and practice-oriented learning.

Strong emphasis is placed on:

- applied learning,
- interdisciplinary collaboration,
- online and blended education,
- challenge-based learning,
- and practical engagement with real urban governance environments.

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Target Audience

The programme is addressed primarily to:

- Master's and postgraduate students interested in smart city governance, digital transformation and urban analytics,
- lifelong learners and early-career professionals seeking interdisciplinary competences in data-driven urban governance,
- public-sector professionals involved in digital transformation and smart city initiatives,
- municipal and metropolitan administration staff,
- GIS and urban analytics practitioners,
- urban planners and sustainability specialists,
- Smart City Coordinators and future Chief Data Officers,
- and professionals operating at the intersection of governance, technology and urban innovation.

The curriculum is particularly suitable for participants seeking to combine analytical, organisational and governance perspectives within a higher education learning environment closely connected to contemporary urban challenges.

Programme Structure

The curriculum is organised into six integrated modules progressing from governance foundations toward applied analytical and implementation-oriented competences.

Module	Main Focus
Module 1	Urban governance and smart city transformation
Module 2	Urban data governance and interoperability
Module 3	AI, urban analytics and decision intelligence
Module 4	Urban infrastructure, GIS and smart city technologies
Module 5	Leadership, organisational transformation and stakeholder coordination
Module 6	Urban Data Lab and interdisciplinary capstone project

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The learning process combines:

- thematic online modules,
- microlearning capsules,
- applied workshops,
- governance simulations,
- analytical exercises,
- collaborative project work,
- and interdisciplinary capstone activities.

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MODULE 1

Urban Governance and Smart City Transformation

Main Objective

The module introduces students to the institutional, organisational and strategic foundations of smart city transformation and data-driven urban governance. Particular attention is given to governance systems, digital transformation, sustainability and evidence-based policymaking within contemporary urban environments.

Capsules

1. Understanding Smart Cities and Urban Governance
2. Digital Transformation in Urban Governance
3. Data-Driven Governance and Public Value
4. Stakeholder Ecosystems and Collaborative Urban Governance
5. European Smart City Policies and Sustainable Urban Transition

MODULE 2

Urban Data Governance and Interoperability

Main Objective

The module examines governance, organisational and ethical dimensions of urban data ecosystems, with particular emphasis on interoperability, institutional coordination and responsible management of public-sector data.

Capsules

1. Urban Data Ecosystems and Data Flows

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2. Data Governance Frameworks and Data Stewardship
3. Interoperability and Integration of Urban Systems
4. Data Quality, Metadata and Open Data
5. Legal, Ethical and Responsible Urban Data Governance

MODULE 3

AI, Urban Analytics and Decision Intelligence

Main Objective

The module develops competences related to urban analytics, AI-supported governance and evidence-based decision-making in public-sector and smart city environments.

Capsules

1. Urban Analytics and Evidence-Based Governance
2. KPI Systems, Dashboards and Urban Performance Monitoring
3. Artificial Intelligence in Urban Governance
4. Predictive Analytics and Scenario Modelling
5. Responsible AI, Bias and Explainability in Public Decision-Making

MODULE 4

Urban Data Infrastructure, GIS and Smart City Technologies

Main Objective

The module introduces technological infrastructures supporting contemporary urban governance, including GIS, IoT systems, digital twins and integrated urban platforms.

Capsules

1. GIS and Spatial Intelligence in Urban Governance
2. IoT Systems and Urban Monitoring Infrastructure
3. Digital Twins and Integrated Urban Platforms
4. Cybersecurity and Digital Resilience in Smart Cities
5. Urban Technology Procurement and Infrastructure Governance

MODULE 5

Leadership, Organisational Transformation and Stakeholder Coordination

Main Objective

The module focuses on organisational adaptation, collaborative governance and leadership competences required for managing digital transformation within complex urban governance environments.

Capsules

1. Leadership in Data-Driven Urban Governance
2. Organisational Transformation and Digital Change
3. Stakeholder Coordination and Collaborative Governance
4. Communication, Negotiation and Public Value
5. Organisational Learning and Innovation Capacity

MODULE 6

Urban Data Lab and Capstone Project

Main Objective

The final module integrates competences developed throughout the programme through interdisciplinary and project-based work addressing realistic urban governance challenges.

Capsules

1. Urban Challenge Identification and Problem Framing
2. Applied Urban Analytics and Decision Support
3. Stakeholder Coordination and Governance Implementation
4. Responsible AI and Governance Evaluation
5. Final Capstone Project and Professional Presentation

Teaching and Learning Approach

The programme is delivered primarily through online and blended learning formats combining asynchronous learning activities with live interactive sessions.

The pedagogical approach integrates:

- challenge-based learning,
- applied urban case studies,
- governance simulations,
- collaborative online workshops,
- analytical exercises,
- interdisciplinary teamwork,
- and project-based learning.

Teaching activities are implemented through the CityDataHub and Data-Driven Learning Lab environments developed within the CDOA project.

The learning process combines:

- microlearning capsules,
- short thematic video units,
- virtual workshops,
- dashboard and dataset analysis,
- GIS and analytical exercises,
- stakeholder simulations,
- self-paced learning activities,

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- and guided reflection sessions.

Particular emphasis is placed on:

- evidence-informed reasoning,
- critical understanding of governance processes,
- interdisciplinary collaboration,
- and practical application of knowledge in realistic urban governance contexts.

Key Competence Areas

The programme develops competences related to:

- urban governance,
- urban data governance,
- interoperability,
- AI-supported decision-making,
- urban analytics,
- GIS and spatial intelligence,
- smart city infrastructure,
- organisational transformation,
- collaborative governance,
- stakeholder coordination,
- responsible AI,
- and evidence-based urban policymaking.

Programme Outcome

Graduates of the programme are prepared to:

- analyse urban governance and digital transformation processes,
- support evidence-based decision-making,
- interpret urban datasets and analytical outputs,
- contribute to responsible implementation of AI-supported governance systems,
- coordinate interdisciplinary smart city initiatives,

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- and operate within complex governance environments connecting technology, analytics and public administration.

The programme positions the Smart Data Officer as an interdisciplinary professional operating at the intersection of:

- governance,
- analytics,
- digital infrastructure,
- organisational transformation,
- and sustainable urban development.

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