

ENGAGE.EU Certificate  
Joint Programme in Digital Transformation

# Data Strategy

## Course Syllabus

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2-3 May 2025 & 9-10 May

### Course Abstract

This course offers a comprehensive view on **Data Strategy**, designed to equip students with the knowledge and skills needed to harness data as a key driver of organizational success. Aimed at last-year Bachelor's and Master's students, they will focus on critical aspects of data management, including governance, architecture, and analytics, while also examining the role of emerging technologies such as artificial intelligence (AI) and the Internet of Things (IoT).

Emphasizing real-world application, the course highlights how data can be leveraged to enhance decision-making, foster innovation, and create a competitive advantage. Students will engage in case studies and projects that reflect real-world challenges, developing the ability to craft and implement data strategies that align with organizational goals.

By integrating technical skills with strategic thinking, the course prepares students to meet the demands of the modern data-driven landscape. Additionally, key professional competencies such as ethical decision-making, communication, and problem-solving are embedded throughout, ensuring students are ready to lead and innovate in their careers.

### Learning Objectives

Upon completion of this course, the students should be able to:

- Understand key components of data strategy, including governance, architecture, and analytics.
- Apply data-driven strategic thinking to analyze businesses, assess industry contexts, and develop strategies for competitive advantage.
- Conduct comprehensive strategic analyses across various industries and competitive scenarios.
- Design and implement data management processes, ensuring data quality, security, and compliance.
- Leverage data insights to inform and guide strategic business decisions.
- Analyze the impact of emerging technologies, such as AI, machine learning, and IoT, on modern data strategies.
- Synthesize and apply knowledge from multiple business disciplines to demonstrate the different connections between business functions.
- Communicate analysis results effectively, providing relevant and actionable recommendations for real-world business challenges.

## Evaluation and Grading

The course will utilize a combination of lectures and case-based discussions, drawing on real-world examples to help students apply the knowledge they acquire.

### Participants' grade will be composed of:

- **40% Team Project:** In teams, students will develop and present a comprehensive **data strategy** for a designated company, focusing on key elements such as **data governance, architecture, and analytics**. The project will require teams to analyze the company's current data landscape, identify opportunities for improvement, and propose a strategic plan for data management and utilization. Emphasis will be placed on aligning the strategy with the company's business objectives and ensuring scalability. Teams will deliver both a written report and a formal presentation, showcasing their findings and recommendations.
- **30% Individual Paper:** Students will write a 3.000-4.000-word essay that explores a specific aspect of data strategy and its influence on digital transformation. This assignment will require students to critically analyze how key components of data management—such as governance, data architecture, or emerging technologies like AI—impact business processes and competitive positioning. Students are encouraged to incorporate **real-world examples** and case studies to support their arguments, providing a deeper understanding of how data strategies drive innovation and efficiency in organizations.
- **30% Class Engagement:** Students are expected to engage in class discussions, collaborate on case studies, and contribute meaningfully to group activities. Participation includes asking insightful questions, offering thoughtful feedback, and sharing relevant experiences. This engagement will not only deepen students' understanding of the material but also enhance their **critical thinking** and **communication skills**, preparing them for real-world business challenges where collaboration and active involvement are essential.

## Readings

### Mandatory Readings:

DalleMule, L., & Davenport, T. H. (2017). *What's Your Data Strategy?*

Offers frameworks for aligning data management with business strategies.

Davenport, T. H., & Bean, R. (2019). *Data Strategy: How to Profit from Big Data, Analytics, and the Internet of Things*.

Outlines strategies for leveraging data as a strategic asset in business.

Kelleher, J., & Tierney, B. (2018). *Data Science*.

Covers key concepts and methodologies in data science for business insights.

Provost, F., & Fawcett, T. (2013). *Data Science for Business*.

Explains how data analysis influences business strategies and decision-making.

**Complementary Readings:**

Chen, H., Chiang, R. H. L., & Storey, V. C. (2012). *Business Intelligence and Analytics: Explores how business intelligence can harness big data for strategic insights.*

Marr, B. (2020). *Data Strategy: How to Profit from a World of Big Data, Analytics, and IoT.* Examines practical implications of data strategies for innovation and competitiveness.

McAfee, A., & Brynjolfsson, E. (2012). *Big Data: The Management Revolution.* Highlights how big data is reshaping management practices and decision-making.

McKinsey Global Institute (2016). *Big Data: The Next Frontier for Innovation.* Discusses big data's potential for driving innovation across industries.

Schmarzo, B. (2016). *Big Data MBA: Driving Business Strategies with Data Science.* Connects big data applications to business performance improvement.

## Sessions

### FIRST SESSION: 2 May 2025, 12 PM – 6 PM

#### Topic 1: Introduction to Data Strategy

- **Overview of Data Strategy:**
  - Definition and significance in today's business landscape.
  - Role in enabling digital transformation across industries.
  - **Real-Life Case:** *Examine how Netflix leverages data strategy for content recommendations and user engagement.*
- **Aligning Data Strategy with Business Goals:**
  - Frameworks for aligning data initiatives with organizational objectives.
  - Discussion on stakeholder engagement and the importance of cross-departmental collaboration.
  - **Group Activity:** *Identify potential misalignments in a provided case study of a company's data strategy.*

#### Topic 2: Key Elements of Data Strategy

- **Core Components:**
  - Overview of governance, architecture, and analytics.
  - Importance of these elements in building a robust data strategy.
  - **Case Study:** *Analyze the data strategy of Procter & Gamble (P&G) and its impact on marketing and product development.*
- **Discussion and Q&A:**
  - Open floor for questions and discussions on challenges faced in implementing data strategies.

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### SECOND SESSION: 3 May 2025, 9 AM – 4 PM

#### Topic 3: Data Governance and Ethics

- **Best Practices in Data Governance Frameworks:**
  - Key principles of effective data governance (accountability, stewardship, and quality).
  - Tools and frameworks for governance implementation (e.g., DAMA-DMBOK).
  - **Real-Life Case:** Review how the General Data Protection Regulation (GDPR) has reshaped data governance in European companies.
- **Addressing Data Privacy, Security, and Ethical Concerns:**
  - Discussion on ethical dilemmas in data usage.
  - Strategies for ensuring compliance with data protection laws.
  - **Group Discussion:** *Analyze a case of a data breach and its implications on business reputation.*

#### Topic 4: Data-Driven Decision Making

- **Utilizing Analytics for Business Intelligence:**
    - Techniques for data analysis (descriptive, diagnostic, predictive).
    - **Real-Life Case:** Explore how Target uses data analytics for customer insights and inventory management.
  - **Introduction to AI and Machine Learning in Data Strategy:**
    - Basic concepts of AI and machine learning.
    - Case examples of AI applications in industries (e.g., IBM Watson in healthcare).
    - **Interactive Demo:** *Brief demonstration of a machine learning model for predictive analytics.*
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#### THIRD SESSION: 9 May 2025, 12 PM – 6 PM

#### Topic 5: Data Architecture

- **Designing Scalable Data Infrastructure:**
  - Key principles of data architecture and its components (data lakes, warehouses).
  - Considerations for scalability and performance optimization.
  - **Real-Life Case:** Analyze Amazon's data architecture and how it supports their e-commerce platform.
- **Managing Structured and Unstructured Data:**
  - Differences between structured and unstructured data.
  - Techniques for data integration and management.
  - **Workshop:** *Hands-on exercise with tools for managing unstructured data (e.g., Apache Hadoop).*

#### Topic 6: Advanced Analytics

- **Predictive and Prescriptive Analytics:**
    - Understanding the difference and applications of both types of analytics.
    - Tools and techniques for implementing advanced analytics.
    - **Real-Life Case:** Case study on how Uber uses predictive analytics for demand forecasting.
  - **AI Applications in Transforming Data into Actionable Insights:**
    - Discussion on natural language processing (NLP) and its applications in data analysis.
    - **Group Activity:** *Brainstorming session on potential AI applications in participants' industries.*
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## FOURTH SESSION: 10 May 2025, 9 AM – 4 PM

### Topic 7: Implementing Data Strategies

- **Creating a Data-Driven Culture:**
  - Strategies for fostering a data-centric organizational culture.
  - Aligning people, processes, and technology for successful data strategy implementation.
  - **Real-Life Case:** Review how Spotify promotes a data-driven culture among teams.
- **Group Project Presentations:**
  - Teams present their group projects on a proposed data strategy for a chosen company, focusing on governance, architecture, and analytics.
  - **Feedback Session:** *Constructive feedback from peers and instructors.*

### Topic 8: Emerging Trends in Data Strategy

- **The Role of IoT and Edge Computing:**
  - Overview of IoT technologies and their implications for data strategies.
  - Discussion on edge computing and its benefits for real-time data processing.
  - **Real-Life Case:** *Analyze how General Electric uses IoT data for predictive maintenance in industrial settings.*
- **Future Trends and Innovations in Data Strategies:**
  - Exploration of upcoming trends (e.g., quantum computing, enhanced data privacy measures).
  - Discussion on the future landscape of data strategy and the evolving role of data professionals.
  - **Wrap-Up Discussion:** *Open forum for participants to share insights gained and their perspectives on the future of data strategy.*