

COURSE AGENDA

Big Data

A professional training programme focused on big data, data platforms, analytics, visualisation, security and data-driven decision-making

15 Hours Duration	eLearning Primary format	English Language
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Primary format	eLearning course delivered through the digital learning platform
Available on request	Live trainer-led online delivery or in-house classroom training
Contact us	Request a tailored quote for your organisation

About Us

This course is delivered by a team with strong expertise in cybersecurity, digital resilience, emerging technologies and secure digital transformation. Our work is grounded in internationally recognised standards, European regulatory requirements and practical experience supporting organisations operating in complex, regulated and technology-driven environments.

INFOSEC CENTER holds ISO/IEC 27001 certification for information security management and, reflecting a structured and responsible approach to cybersecurity, data protection, governance and AI-enabled technologies. The organisation is also recognised as an **EASA-approved** training provider for specialised aviation cybersecurity training, aligned with European aviation safety and information security requirements.

Our innovation capacity has been recognised through the **Impact Stars distinction** at the **Deloitte Technology Fast 50**, awarded for the innovation delivered by our Machine Learning platform. This reflects our commitment to practical, high-impact technology solutions that combine advanced digital capabilities with real business and societal value.

We are actively connected to European digital innovation networks, including the **European DIGITAL SME Alliance** and the **BSC AI Factory Incubation Program**, contributing to secure, competitive and responsible digital transformation across Europe.

Our broader innovation platform, **FACTORY X.0**, supports the secure transformation of industrial and digital ecosystems by integrating cybersecurity, automation, artificial intelligence, industrial digitalisation and advanced technology adoption, with a focus on resilience, compliance and sustainable innovation.

We support organisations in understanding cyber risk, strengthening digital infrastructure, improving governance, preparing for regulatory compliance and building a stronger security culture across aviation, industry, education, public services and digital business.

Why This Course Matters

Data has become one of the most important resources available to modern organisations. Every day, businesses generate and collect large volumes of information through operational systems, customer interactions, digital platforms, connected devices, social media, financial systems and external public data sources. When properly managed and analysed, this data can support better decisions, improved services, operational efficiency, innovation and competitive advantage.

Big Data refers not only to the volume of information available, but also to the complexity, speed, variety and value of that information. Organisations need the ability to collect, store, process, analyse and visualise large and diverse datasets in ways that are reliable, secure and aligned with business objectives.

At the same time, Big Data adoption requires careful planning. Organisations must understand the challenges related to data quality, infrastructure, scalability, cost, privacy, security, compliance and ethical use. Without a structured approach, data initiatives can become fragmented, expensive or difficult to govern.

This course addresses those needs directly. It is designed for learners who want to understand Big Data concepts, technologies, platforms, data sources, analytics methods, visualisation tools, machine learning applications, security requirements and ethical responsibilities.

Participants will leave this course equipped to:

- Understand the concept of Big Data and its relevance for small and medium-sized enterprises
- Recognise the opportunities and limitations associated with large-scale data collection and analysis
- Identify key Big Data technologies, including NoSQL databases, NewSQL databases, Hadoop and MongoDB

- Understand how different data sources can support organisational insight and decision-making
- Evaluate security, privacy, compliance and ethical considerations related to Big Data
- Assess how Big Data can support operational improvement, customer experience, innovation and strategic planning

Course Overview

Course Title	Big Data
Total Duration	15 Hours
Primary Delivery Format	eLearning course delivered through the digital learning platform
Optional Delivery Formats	Available on request as live trainer-led online delivery or in-house classroom training
Target Audience	Professionals seeking to understand, evaluate and apply Big Data concepts, platforms and analytics methods in organisational and business contexts
Prerequisites	No advanced data engineering experience required; basic digital literacy and general understanding of business processes are recommended
Language	English

Planning & Delivery Options

The standard version of this programme is structured as an eLearning course, allowing participants to progress through the agenda in a flexible and accessible format. This option is suitable for organisations that need scalable delivery, consistent learning materials and clear assessment through the digital platform.

At the client's request, the same course agenda can also be delivered with a live trainer, either online or in an in-house classroom format. These options are recommended when the organisation wants direct interaction with the trainer, applied discussions based on internal workflows or a more guided learning experience.

For organisational enrolment, adapted delivery or group implementation, please request a tailored quote.

Learning Approach

The learning approach is built on four pillars:

01 Conceptual Clarity

Each module introduces Big Data concepts in a clear and structured way before moving into platforms, tools, analytics methods and implementation considerations. Learners build a solid understanding of data volume, variety, velocity, value, data ecosystems, processing architectures and business relevance.

02 Applied Learning

Case studies, scenario-based exercises and practical examples connect Big Data concepts to real organisational challenges. Learners explore how data can support strategic decision-making, operational optimisation, customer experience, innovation and performance improvement.

03 Security & Governance Integration

Cybersecurity, data protection, privacy, ethical use, access control, compliance and governance principles are embedded throughout the course. Big Data is presented not only as a technical capability, but as an organisational responsibility that must be managed with transparency, accountability and risk awareness.

04 Progressive Assessment

Each module includes a knowledge check through the eLearning platform. A final comprehensive assessment consolidates learning across all modules and supports the validation of knowledge gained throughout the programme.

Detailed Course Agenda

Module 01 Introduction to Big Data and SME Relevance

Learning Objectives

- Develop a clear understanding of the concept of Big Data and its relevance in modern organisational environments.
- Understand the large volumes of data generated, collected and made available through business operations and digital platforms.
- Explore how Big Data can influence and support strategic decision-making, operational improvement and competitiveness.
- Identify the main opportunities created by Big Data, including improved efficiency, better customer experience, innovation and identification of new business opportunities.
- Understand the challenges and limitations associated with Big Data, including data collection, storage, processing, analysis, security and data protection.
- Evaluate the resources, platforms and technologies available, with attention to accessibility, scalability, cost and implementation complexity.

- Analyse relevant case studies and practical examples showing how organisations use Big Data to solve specific problems, optimise operations and create competitive advantage.
- Understand why Big Data initiatives must be aligned with business objectives, available resources and responsible data governance.

Tools & Methodology

eLearning modules, optional live trainer-led sessions.

Assessment: Knowledge test via the eLearning platform.

Module 02 Big Data Technologies and Platforms

Learning Objectives

- Understand the role of Big Data technologies and platforms in collecting, storing, processing and analysing large and diverse datasets.
- Explore NoSQL databases and understand the main types, including document databases, column-oriented databases, key-value databases and graph databases.
- Understand the concept of NewSQL databases and how they aim to manage structured and unstructured data in a scalable and efficient way.
- Evaluate use cases and benefits of NewSQL databases in organisational contexts where scalability and transactional consistency are important.
- Explore Hadoop and MongoDB, including their main architectural components and how they support distributed processing, data storage and large-scale data analysis.
- Understand the benefits of Big Data frameworks in relation to scalability, fault tolerance and distributed processing power.
- Evaluate available resources and tools for implementing Big Data platforms, considering cost, accessibility, community support, technical requirements and organisational maturity.
- Analyse practical examples of NoSQL, NewSQL, Hadoop and MongoDB to address business problems and improve operational efficiency.

Tools & Methodology

eLearning modules, optional live trainer-led sessions, case studies.

Assessment: Knowledge test via the eLearning platform.

Module 03 Data Sources, Data Preparation and Data Management

Learning Objectives

- Identify key sources of Big Data within organisational environments, including enterprise systems, databases, data warehouses, metadata repositories and unstructured data sources.
- Understand how business platforms such as Oracle, SAP, Microsoft systems and data warehouses can contribute to Big Data environments.
- Explore social media data sources, including public feeds, streaming APIs and REST APIs, and understand their relevance for customer insight, trend analysis and market monitoring.
- Identify public data sources, including weather, economic, financial and regulatory data, and understand how they can support organisational analysis and forecasting.
- Understand the importance of data preparation in Big Data projects, including data cleaning, transformation, integration, validation and enrichment.
- Examine the challenges associated with combining structured, semi-structured and unstructured data from multiple internal and external sources.
- Understand the role of metadata in organising, interpreting and governing large datasets.
- Recognise why data governance, documentation and lifecycle management are essential for sustainable Big Data initiatives.

Tools & Methodology

eLearning modules, optional live trainer-led sessions, case studies.

Assessment: Knowledge test via the eLearning platform.

Module 04 Data Analysis, Visualisation and Machine Learning for Big Data

Learning Objectives

- Understand the main methods and techniques used in data analysis, including statistical analysis, exploratory analysis, clustering, trend analysis and correlation analysis.
- Identify appropriate analytical approaches based on data type, business objective, available tools and expected outcomes.
- Understand how libraries and packages can support complex analytical operations and help extract useful insights from large datasets.
- Explore data visualisation tools and platforms such as Tableau, Power BI and Matplotlib.
- Understand how visualisation supports decision-making, communication, pattern recognition and identification of trends in large datasets.
- Learn how interactive dashboards, charts and reports can make Big Data insights more accessible to business stakeholders.
- Understand the basic principles of machine learning and how they apply to Big Data analysis.
- Explore machine learning models used for prediction, classification, supervised learning and unsupervised learning.
- Understand how machine learning can help organisations extract knowledge, identify patterns and generate relevant predictions.

Tools & Methodology

eLearning modules, optional live trainer-led sessions, case studies.

Assessment: Knowledge test via the eLearning platform.

Module 05 Big Data Security, Privacy and Ethics

Learning Objectives

- Evaluate security challenges related to the management and analysis of large datasets.
- Understand the importance of protecting data throughout the full lifecycle, from collection and storage to processing, analysis, sharing and deletion.
- Explore technological and practical methods for protecting data, including encryption, anonymisation, pseudonymisation, access control and monitoring.
- Understand how security policies and procedures can support the protection of data and reduce the risk of unauthorised access or misuse.
- Examine the ethical implications of collecting, storing and using large volumes of data.
- Understand key ethical principles, including privacy, transparency, consent, fairness, proportionality and responsible use of data.
- Identify how organisations can use data in ways that respect user rights and maintain trust.
- Understand relevant regulatory and legal requirements related to data protection and privacy, including the General Data Protection Regulation.
- Analyse case studies showing how organisations have addressed security and ethical challenges in Big Data projects.
- Understand why Big Data initiatives must combine technical capability with responsible governance, accountability and compliance awareness.

Tools & Methodology

eLearning modules, optional live trainer-led sessions, case studies.

Assessment: Knowledge test via the eLearning platform.

Module 06 Big Data Implementation and Business Value

Learning Objectives

- Understand how Big Data initiatives can be planned and implemented in alignment with organisational objectives and available resources.
- Learn how to define the business problem, data requirements, success criteria and expected value of a Big Data project.
- Understand how to evaluate the practical requirements for Big Data implementation, including platforms, tools, skills, data sources, security controls and governance structures.
- Learn how to connect Big Data analysis to measurable outcomes such as efficiency improvement, customer insight, risk reduction, innovation and strategic planning.
- Understand how a final data project can be used to demonstrate practical knowledge, solve a realistic problem and communicate findings to stakeholders.
- Explore how Big Data outputs should be presented in a clear, actionable and business-oriented way.
- Recognise common implementation challenges, including poor data quality, unclear objectives, lack of skills, cost constraints, fragmented systems and limited stakeholder adoption.
- Identify practical strategies for sustaining Big Data capabilities over time, including documentation, monitoring, governance, training and continuous improvement.

Tools & Methodology

Final online assessment, optional trainer review session, individual feedback where applicable.

Module 07 Course Closing & Consolidation

Learning Objectives

- Consolidate understanding across all previous modules through a structured review of Big Data concepts, platforms, data sources, analytics methods, visualisation tools, machine learning applications, security requirements and ethical principles.
- Revisit the most important technical and business themes covered throughout the programme, including data collection, data management, scalable platforms, NoSQL and NewSQL databases, Hadoop, MongoDB, data analysis, visualisation and responsible data use.
- Prepare for the final assessment by reviewing key definitions, practical applications and decision-making criteria related to Big Data adoption.
- Reflect on how Big Data can be applied responsibly and effectively within the learner's own organisational or professional context.
- Receive personalised trainer feedback on learning progress and areas for further professional development when the course is delivered with trainer support.

Assessment & Certification

Assessment in this course is continuous, formative and cumulative. Rather than relying on a single high-stakes examination, the programme uses a layered approach that supports learning throughout and ensures that the final certification reflects a genuine command of the material.

Assessment Type	Description
Module Knowledge Checks	Each module is followed by a knowledge test delivered through the eLearning platform. These tests reinforce learning at the point of completion and allow learners to identify any gaps before progressing.

Final Assessment	A comprehensive online test covering all modules is completed at the end of the course. This assessment evaluates the learner's overall understanding and ability to apply key concepts across the programme.
Trainer Feedback	When trainer-led delivery is requested, live session interactions and final assessment performance can be reviewed by the course trainer, who provides structured feedback to support ongoing professional development.
Certificate of Completion	Participants who successfully complete the course and final assessment may receive a certificate of completion issued by INFOSEC CENTER, confirming participation and successful completion of the training programme.

Closing Note

Big Data is more than the accumulation of large volumes of information. It is a structured capability that allows organisations to transform data into insight, insight into decisions and decisions into measurable value. When used effectively, Big Data can improve operations, strengthen customer understanding, support innovation and help organisations respond more intelligently to complex business environments.

The organisations that benefit most from Big Data are those that approach data with clear objectives, appropriate technologies, strong governance and responsible use. Data initiatives should not be driven only by the availability of tools or platforms. They should be guided by business needs, data quality, security, privacy, ethics and the ability to communicate results in a meaningful way.

This course has been designed with that understanding at its core. It aims to prepare learners not only to understand Big Data terminology and technologies, but also to evaluate data sources, use analytical methods, interpret visualisations, recognise risks and contribute responsibly to data-driven initiatives.

By combining conceptual clarity, applied examples, technical awareness and governance considerations, the programme helps learners build a practical and responsible perspective on Big Data. The knowledge developed here is relevant across sectors where large-scale data and evidence-based decision-making are becoming increasingly important.

We hope this programme supports your development as a confident, capable and responsible professional in the field of Big Data. The perspective you build here will help you identify opportunities, make informed decisions and contribute meaningfully to the responsible use of data in modern organisations.

We wish you a productive and insightful learning experience.

Primary format: eLearning course

Live trainer-led and in-house delivery available on request

Request a quote: contact@edkore.com