# Hybrid Professional Master's Degree

## Data Science Management (DSO, Data Science Officer)

tech global university

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## Data Science Management (DSO, Data Science Officer)

Modality: **Hybrid (Online + Internship)**
Duration: **12 months**
Certificate: **TECH Global University**
Credits **60 + 4 ECTS**
Website: **www.techtitute.com/us/school-of-business/hybrid-professional-master-degree/hybrid-professional-master-degree-data-science-management-dso-data-science-officer**

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# Introduction

In the midst of the digital era, the explosion of business-generated data has given rise to a growing need to effectively manage, analyze and leverage this data. In this context, the field of Data Science Management emerges as an interdisciplinary discipline that serves to address the challenges associated with large-scale data management. Against this backdrop, a wide range of job opportunities are opening up for computer scientists in a variety of fields. However, to take advantage of these possibilities, specialists need to keep abreast of the latest technological advances in this area. For this reason, TECH presents an innovative university degree that will delve into the latest innovations in this field.

*Thanks to this Hybrid Professional Master's Degree, you will build predictive models using Machine Learning algorithms to predict trends, patterns and future results from historical data"*

Artificial Intelligence (AI) has become a useful tool for Data Science Management professionals, enabling them to analyze large volumes of data, identify complex patterns and make automated decisions. However, despite its technological advances, professionals face a number of challenges in the course of their work. For example, as the complexity of AI models and the volume of data increases, experts face challenges in terms of scalability or performance. They must therefore find new ways to develop models that can handle large amounts of data and operate efficiently in real-time environments.

In this context, TECH launches a pioneering and innovative Hybrid Professional Master's Degree in Data Science Management. Designed by experts in this field, the academic itinerary will delve into aspects such as Data Analytics in business organizations or Information Management and Manipulation. Likewise, the syllabus will provide students with the keys to skillfully handle instruments such as Machine Learning, Data Mining or Internet of Things. It should be noted that, after passing the theoretical stage, the program includes an internship in a prestigious institution. In this way, graduates will be able to apply everything they have learned in practice, in a real working environment equipped with first-class technological tools.

In this way, TECH offers an excellent opportunity for professionals seeking to advance their careers. In addition, it offers specialists the flexibility to consult the online curriculum, and at the same time, provides them with a practical experience in a prestigious institution.

This **Hybrid Professional Master's Degree in Data Science Management (DSO, Data Science Officer)** contains the most complete and up-to-date program on the market. The most important features include:

- Development of more than 100 IT cases presented by professional experts in data analysis and interpretation and university professors with extensive experience in the digital sector
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Development of on-site analytical skills to make quality decisions
- Testing of best practices for data management according to data type and uses
- Analysis of data management tools using programming languages
- Selection of the most appropriate tools and general methods for modeling each Dataset according to the preprocessing carried out
- Development and implementation of the algorithms used for data preprocessing
- All of this will be complemented by theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection
- In addition, you will be able to do an internship in one of the best advertising agencies

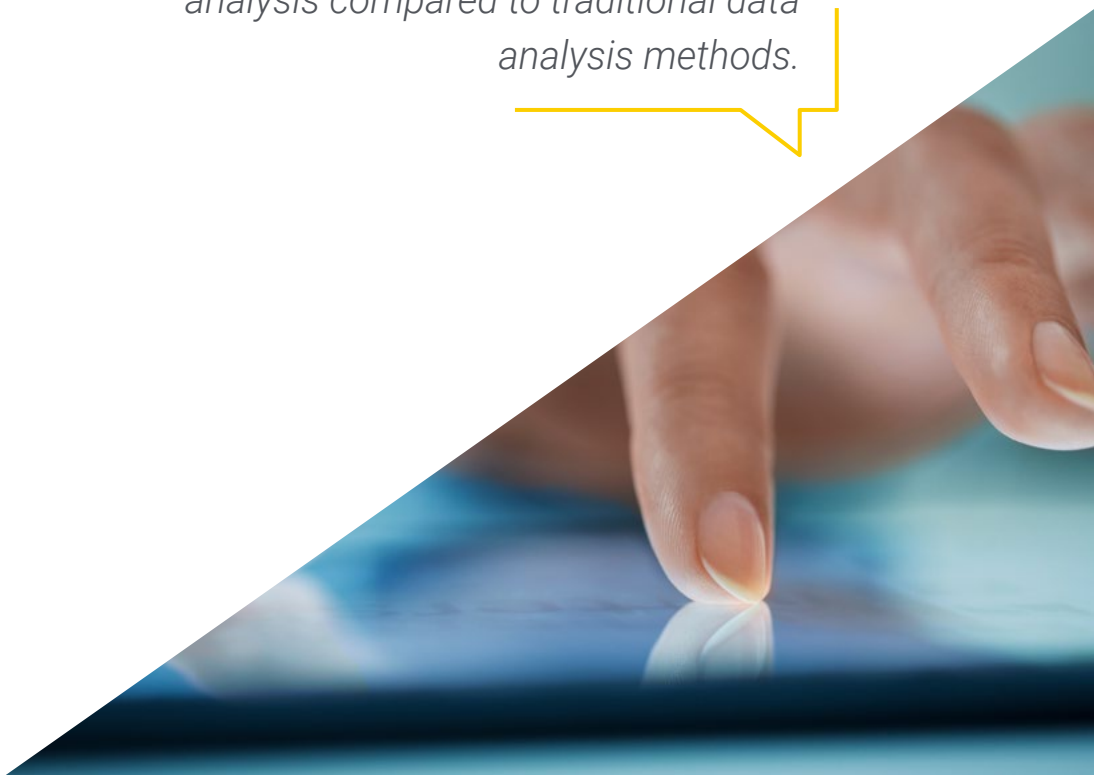
*You will develop skills to plan, execute and manage Data Science projects from start to finish, ensuring the effectiveness of the results"*

*This Hybrid Professional Master's Degree will give you a deep understanding of how to apply Dara Science techniques in different industries and business contexts.*

*Expand your skills in big data processing and discover the evolution of Big Data analysis compared to traditional data analysis methods.*

In this Master's program, of a professionalizing nature and blended learning modality, the program is aimed at updating IT and Marketing professionals who work in advertising agencies and strategic management and who require a high level of qualification in new technologies. The contents are based on data analysis, and oriented in a didactic way to integrate theoretical knowledge into professional practice.

Thanks to its multimedia content developed with the latest educational technology, they will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to prepare in real situations. This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.



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# Why Study this Hybrid Professional Master's Degree?

Students who access this Hybrid Professional Master's Degree will achieve a comprehensive mastery of classical and advanced modeling procedures through the course of a degree designed exclusively for them to achieve it in just 12 months. This is a program through which graduates will be able to broaden their knowledge in an exhaustive manner with academic material of the highest quality. In addition, they will be able to fix them, a posteriori, through an unparalleled practical stay in which they will work side by side with the best professionals in the IT field.


*The best program to become an expert in predictive and profitability models through the mastery of data processing, Machine Learning and process optimization"*

### 1. Updating from the Latest Technology Available

With the advent of Industry 4.0, technology has become a fundamental aspect in any professional sector, especially in the field of Data Science Management. This is because they provide IT experts with the necessary tools to process, store and visualize large volumes of data efficiently. Therefore, through this Hybrid Professional Master's Degree, graduates will have the most advanced technological instruments to perform their work effectively.

### 2. Gaining In-depth Knowledge from the Experience of Top Specialists

TECH offers its students personalized guidance from leading experts in Data Science Management. These specialists will accompany them throughout their learning process to help them optimize their skills and resolve any doubts they may have.

### 3. Entering First-class Environments

To enrich the theoretical teaching of the Hybrid Professional Master's Degree, TECH makes a careful selection of national and international practical training centers. This selection guarantees an innovative and collaborative work environment, where graduates will be able to acquire new skills and experiences from experienced professionals. Undoubtedly, this is a unique opportunity to learn in a practical and effective way.



### 4. Combining the Best Theory with State-of-the-Art Practice

Although the program includes an extensive theoretical part, the practical phase is equally crucial. During this stage, through various hands-on learning tools, students will be involved in projects that will provide them with the latest knowledge in the field of Data Science Management.

### 5. Expanding the Boundaries of Knowledge

TECH provides the possibility of doing this Internship Program, not only in national, but also in international centers. In this way, specialists will be able to expand their frontiers and catch up with the best professionals in the field of Data Science Management.

*You will have full practical immersion at the center of your choice"*

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# Objectives

Thanks to this Hybrid Professional Master's Degree, IT professionals will have advanced knowledge in the area of Data Science Management. Likewise, graduates will effectively handle cutting-edge technological tools such as Artificial Intelligence, Machine Learning or Data Mining, among others. Likewise, students will acquire the necessary skills to effectively manage Data Science projects, from the definition of objectives to the implementation of solutions.

*You will use advanced algorithms to examine large volumes of data and extract meaningful information to help identify trends"*

## General Objective

- The objective of the Hybrid Professional Master's Degree in Data Science Management is to enrich and enhance the skills of experts in disciplines such as Computer Science or Marketing so that they can explore the benefits of applying Data Analysis techniques in various business departments. By participating in this program, students will delve into the use of software tools for data visualization and analysis. All this will allow specialists to propose techniques and objectives to increase productivity in the business environment

*The goal of TECH is you: give a boost to your professional career as a computer scientist and stand out in a sector that is highly demanded by companies"*



## Specific Objectives

### Module 1. Data Analysis in a Business Organization

- Develop analytical skills in order to make quality decisions
- Examine effective marketing and communication campaigns
- Determine the creation of scorecards and KPIs according to the department
- Generate specialized knowledge to develop predictive analytics
- Propose business and loyalty plans based on market research
- Develop the ability to listen to the customer
- Apply statistical, quantitative and technical knowledge in real situations

### Module 2. Data and Information Management and Manipulation for Data Science

- Perform data analyses
- Unify diverse data: Achieving consistency of information
- Producing relevant, effective information for decision making
- Determine the best practices for data management according to its typology and uses
- Establish data access and reuse policies
- Ensure security and availability: information availability, integrity and confidentiality
- Examine data management tools using programming languages

### Module 3. IoT Devices and Platforms as the Basis for Data Science

- Identify what is IoT (Internet of Things) and IIoT (Industrial Internet of Things)
- Review the Industrial Internet Consortium
- Analyze what is the IoT reference architecture
- Address IoT sensors and devices and their classification
- Identify communications protocols and technologies used in IoT
- Examine the different Cloud platforms in IoT: general purpose, industrial, open source
- Develop data exchange mechanisms
- Establish security requirements and strategies
- Present the different IoT and IIoT application fields

### Module 4. Graphical Representation of Data Analysis

- Generate specialized knowledge in data analysis and representation
- Examine the different types of grouped data
- Establish the most-used graphic representations in different fields
- Determine the design principles in data visualization
- Introduce graphic narrative as a tool
- Analyze the different software tools for graphing and exploratory data analysis

### Module 5. Data Science Tools

- Develop the skills to convert data into information from which knowledge can be extracted
- Determine the main features of a dataset, its structure, components and the implications of its distribution in the modeling
- Supporting decision making by performing comprehensive data analysis in advance
- Develop skills to solve practical cases using data science techniques
- Establish the most appropriate general tools and methods for modeling each Dataset based on the preprocessing performed
- Assess the results in an analytical way, understanding the impact of the chosen strategy on the various metrics
- Demonstrate critical analysis of the results obtained after applying preprocessing or modeling methods

### Module 6. Data Mining. Selection, Pre-Processing and Transformation

- Generate specialized knowledge about the statistical prerequisites for any data analysis and evaluation
- Develop the necessary skills for data identification, preparation and transformation
- Asses the various methodologies presented and identify advantages and drawbacks
- Examine the problems in high dimensional data environments
- Implement algorithms used for data preprocessing
- Demonstrate the ability to interpret data visualization for descriptive analysis
- Develop advanced knowledge of the different existing data preparation techniques for data cleaning, normalization and transformation

### Module 7. Predictability and Analysis of Stochastic Phenomena

- Analyze time series
- Develop the formulation and basic properties of univariate time series models
- Examine the methodology for modeling and prediction of real time series
- Assess univariate models including outliers
- Apply dynamic regression models and apply the methodology for the construction of such models from observed series
- Address the spectral analysis of univariate time series, as well as the fundamentals related to periodogram-based inference and interpretation
- Estimate the probability and trend in time series for a given time horizon

### Module 8. Design and Development of Intelligent Systems

- Analyze the step from information to knowledge
- Develop the different types of machine learning
- Examine metrics and scores to quantify model quality
- Implement the different machine learning algorithms
- Identify probabilistic reasoning models
- Lay the foundations for deep learning
- Demonstrate the skills acquired to understand the various machine learning algorithms

### Module 9. Architecture and Systems for Intensive Use of Data

- Determine the requirements for mass data usage systems
- Examine different data models and analyze databases
- Analyze the key functionalities for distributed systems and their importance in different types of systems
- Assess which widely used applications use the fundamentals of distributed systems to design their systems
- Analyze the way in which databases store and retrieve information
- Understand the different replication models and associated issues
- Develop partitioning and distributed transactions
- Assess batch systems and (near) real time systems

### Module 10. Practical Application of Data Science in Business Sectors

- Analyze the state of the art of Artificial Intelligence (AI) and data analytics
- Develop specialized knowledge of the most widely used technologies
- Generate a better understanding of the technology through use cases
- Analyze the chosen strategies to select the best technologies to implement
- Determine the fields of application
- Examine the actual and potential risks of the technology used
- Propose benefits derived from the use
- Identify future trends in specific fields

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# Skills

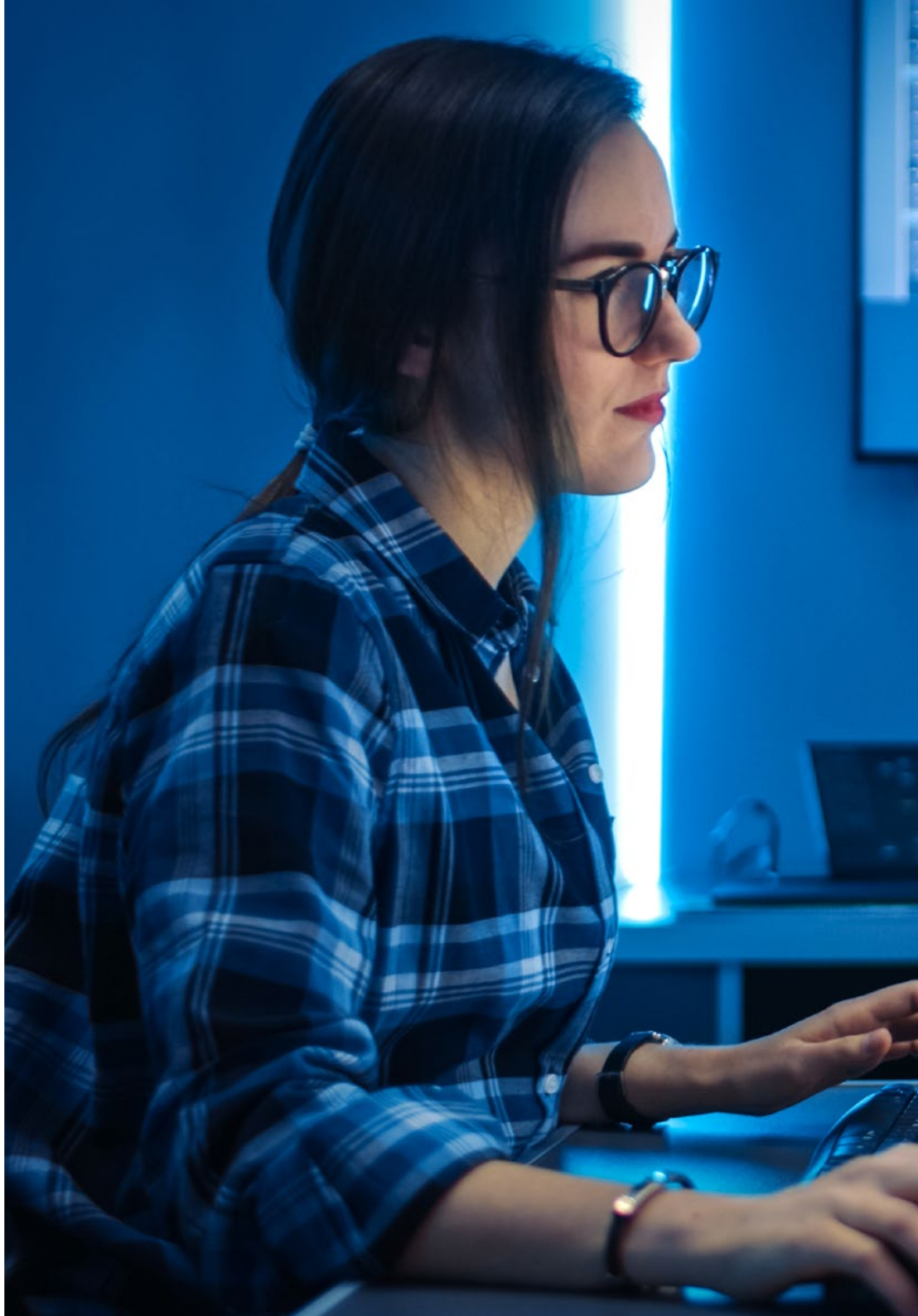
After completing this Hybrid Professional Master's Degree in Data Science Management, IT professionals will have acquired advanced skills to provide excellent quality services to a wide range of companies in different sectors. In this sense, graduates will master sophisticated technological tools such as Artificial Intelligence, Machine Learning, Internet of Things or Data Mining.  Thanks to this, experts will be highly qualified to plan, execute and manage innovative Data Science projects.

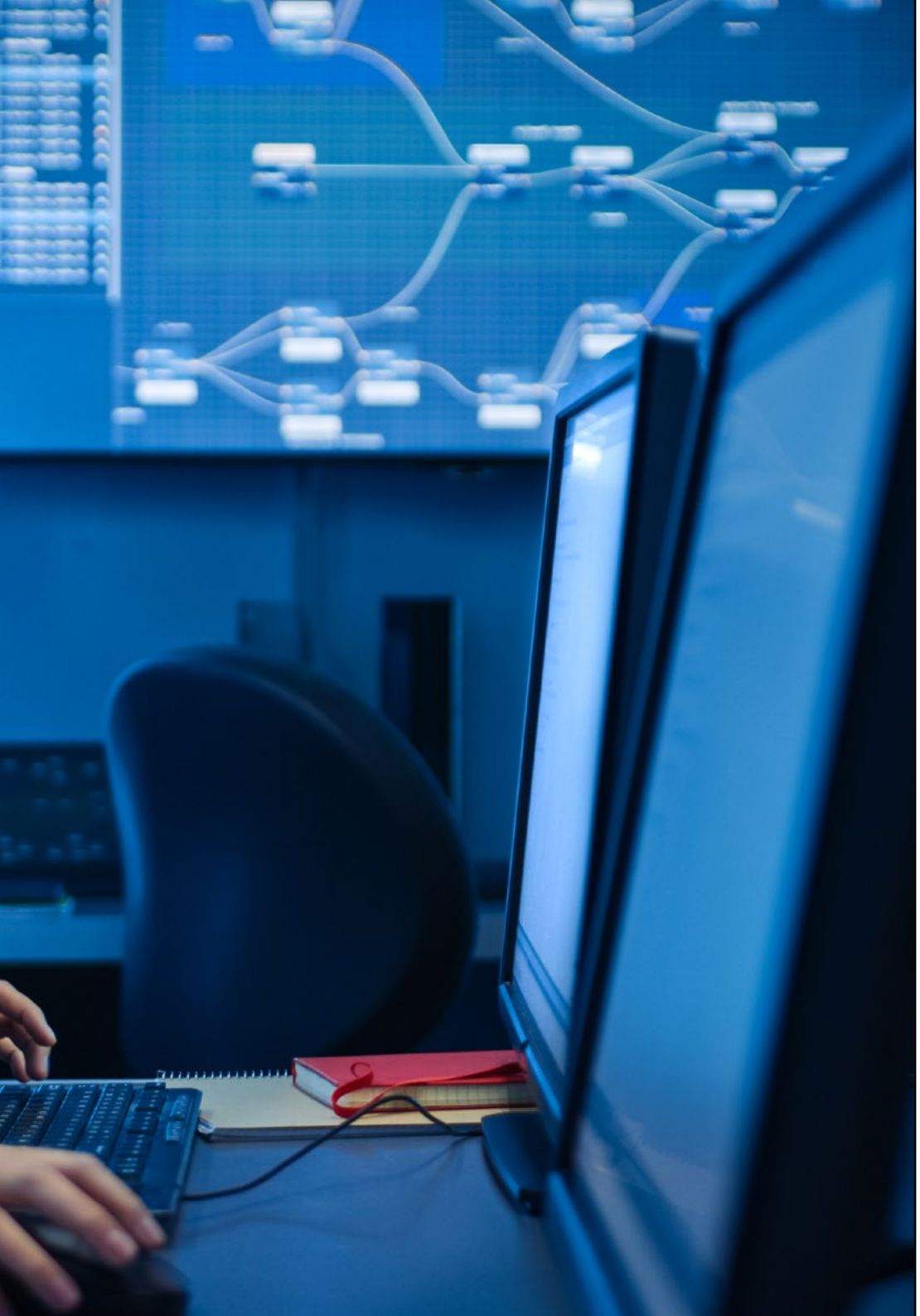
*You will perform an efficient management of databases and data storage systems, thus guaranteeing their security"*

## General Skills

- Develop a technical and business perspective of data analysis
- Understand the most current algorithms, platforms and tools for data exploration, visualization, manipulation, processing, and analysis
- Implementing a business vision necessary for valorization as a key element for decision making
- Be able to address problems specific to data analysis

*You will gain the skills to address complex challenges related to Data Analysis and Management using creative approaches"*





## Specific Skills

- Specialize in Data Science from a technical and business perspective
- Visualize data in the most appropriate way to favor data sharing and understanding for different profiles
- Address the key functional areas of the organization where data science can deliver the most value
- Develop knowledge of the data life cycle, its typology and the technologies and phases necessary for its management
- Develop advanced knowledge in fundamental data mining techniques for data selection, preprocessing and transformation
- Specialize in the main Machine Learning algorithms for the extraction of hidden knowledge in data
- Generate specialized knowledge in the software architectures and systems required for intensive data use
- Determine how the IoT can be a source of data generation and key information on which to apply data science for knowledge extraction
- Analyze the different ways of applying data science in different sectors or verticals by learning from real examples

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# Course Management

In its commitment to provide the most complete and updated university programs in the academic panorama, TECH carries out a meticulous process to form its teaching staff. For this Hybrid Professional Master's Degree, TECH brings together true professionals in the field of Data Science Management. These experts have a long career, where they have been part of renowned technology companies. Therefore, the graduates have the guarantees they demand to access a first class academic experience, which will expand their professional prospects significantly.

*The diversity of talents of the teaching staff will provide you with a dynamic and enriching learning environment. Learn with the best!"*

## Management

### Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus Global Solutions
- CTO at Korporate Technologies
- CTO at AI Shepherds GmbH
- Consultant and Strategic Business Advisor at Alliance Medical
- Director of Design and Development at DocPath
- PhD. in Psychology from the University of Castilla - La Mancha
- PhD in Economics, Business and Finance from the Camilo José Cela University
- PhD in Psychology from University of Castilla – La Mancha
- Máster in Executive MBA por la Universidad Isabel I
- Master's Degree in Sales and Marketing Management, Isabel I University
- Expert Master's Degree in Big Data by Hadoop Training
- Master's Degree in Advanced Information Technologies from the University of Castilla - la Mancha
- Member of: SMILE Research Group

## Professors

### Mr. Peris Morillo, Luis Javier

- Technical Lead of Capitole Consulting for Inditex
- Senior Technical Lead and Delivery Lead Support at HCL Technologies
- Technical Writer at Baeldung
- Agile Coach and Operations Manager at Mirai Advisory
- Developer, Team Lead, Scrum Master, Agile Coach and Product Manager at DocPath
- Technologist at ARCO
- Degree in Computer Science Engineering from the University of Castilla-La Mancha
- Postgraduate in Project Management by the CEOE (CEOE)

### Dr. Montoro Montarroso, Andrés

- Researcher in the SMILe Group at the University of Castilla-La Mancha
- Researcher at the University of Granada
- Data Scientist at Prometeus Global Solutions
- Vice President and Software Developer at CireBits
- Ph.D. in Advanced Information Technology from the University of Castilla-La Mancha
- Graduate in Computer Engineering from the University of Castilla-La Mancha
- Master's Degree in Data Science and Computer Engineering from the University of Granada
- Invited professor in the subject of Knowledge-Based Systems at the Escuela Superior de Informática de Ciudad Real, giving the lecture: "Advanced Artificial Intelligence Techniques: Search and Analysis of Potential Radicals in Social Media"
- Guest lecturer in the subject of Data Mining at the Escuela Superior de Informática de Ciudad Real, giving the lecture: "Applications of Natural Language Processing: Fuzzy Logic to the analysis of messages in social networks"
- Speaker at the Seminar on Prevention of Corruption in Public Administration and Artificial Intelligence at the Faculty of Law and Social Sciences of Toledo, giving the lecture: "Artificial Intelligence Techniques"
- Speaker at the first International Seminar on Administrative Law and Artificial Intelligence (DAIA). Organized by the Centro de Estudios Europeos Luis Ortega Álvarez and the Institut de Recerca TransJus. Conference entitled "Sentiment Analysis for the Prevention of Hate Messages in Social Networks"

### Ms. Fernández Meléndez, Galina

- Specialist's Degree in Big Data
- Data Analyst at Aresi Gestión de Fincas
- Data Analyst in ADN Mobile Solution
- Bachelor's Degree in Business Administration at Universidad Bicentenaria Aragua Caracas, Venezuela
- Diploma in Planning and Public Finance from the Venezuelan School of Planning
- Master's Degree in Data Analysis and Business Intelligence from the University of Oviedo
- MBA in Business Administration and Management (Escuela De Negocios Europea De Barcelona
- Master's Degree in Big Data and Business Intelligence from the European Business School of Barcelona

### Ms. Pedrajas Parabá, MARÍA Elena

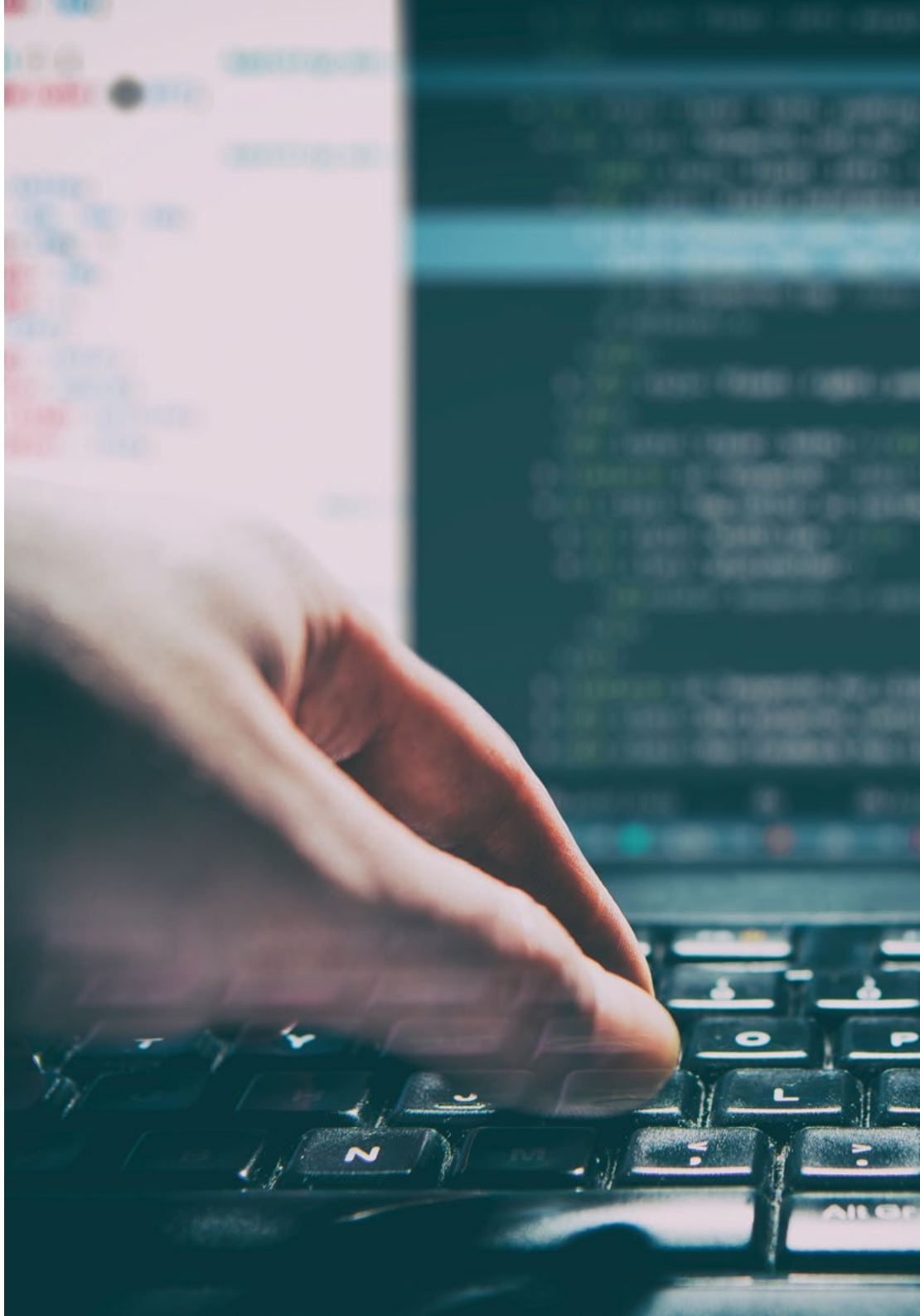
- New Technologies and Digital Transformation Consultant en Management Solutions
- Researcher in the Department of Computer Science and Numerical Analysis at the University of Cordoba
- Researcher at the Singular Center for Research in Intelligent Technologies in Santiago de Compostela
- Degree in Computer Engineering from the University of Cordoba
- Master's Degree in Data Science and Computer Engineering from the University of Granada
- Master's Degree in Business Consulting at the Pontificia Comillas University

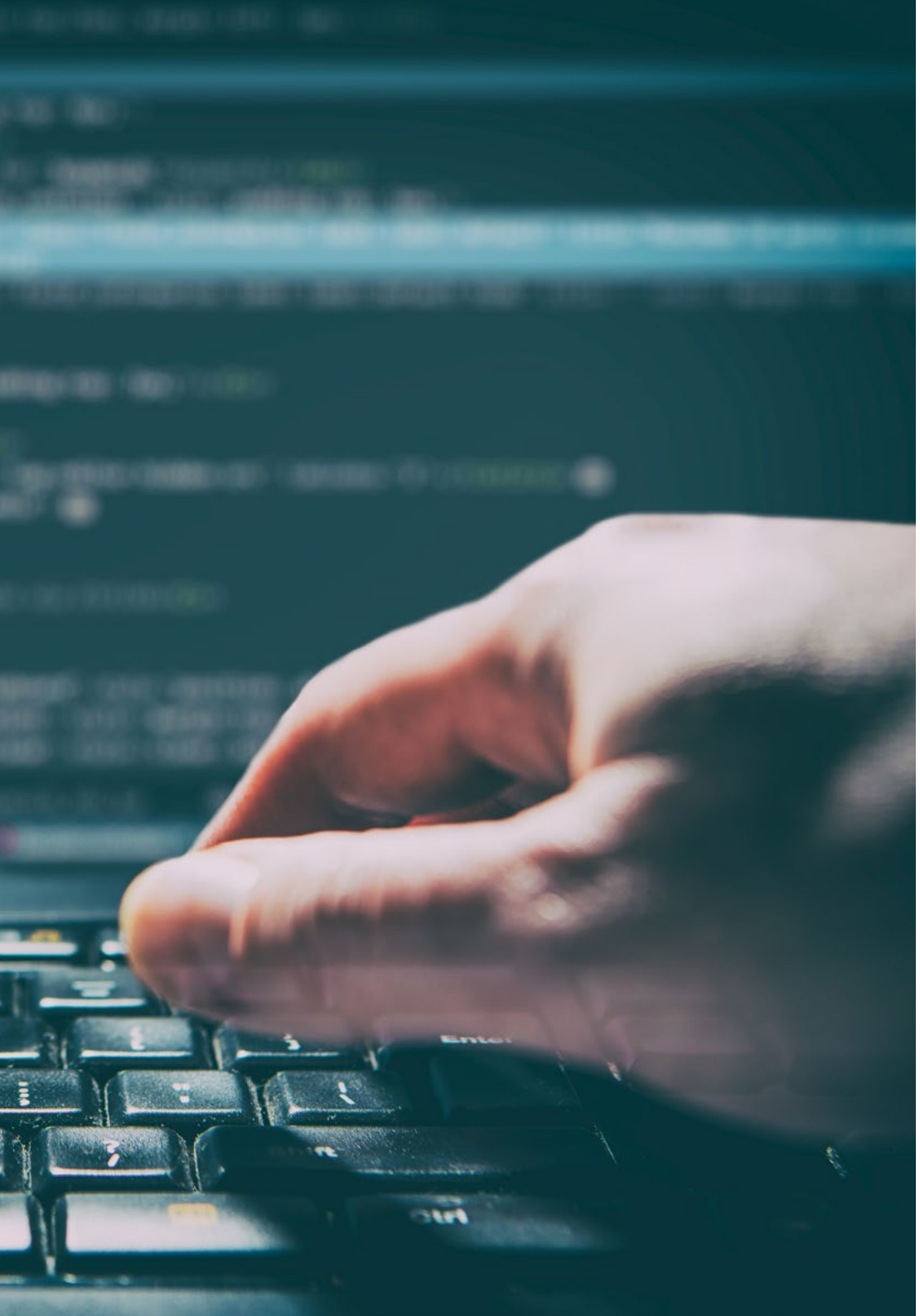
### Ms. Martínez Cerrato, Yésica

- Education, Business and Marketing Specialist
- Responsible for Technical Training at Securitas Seguridad España
- Product Manager in Electronic Security at Securitas Seguridad España
- Business Intelligence Analyst at Ricopia Technologies
- IT Technician and Head of OTEC Computer Classrooms at the University of Alcalá de Henares
- Collaborator in the ASALUMA Association
- Degree in Electronic Communications Engineering at the Escuela Politécnica Superior, Universidad de Alcalá de Henares

### Mr. Tato Sánchez, Rafael

- Technical Director at Indra Sistemas SA
- Systems Engineer at ENA TRÁFICO SAU
- Master's Degree in Industry 4.0. From Universidad en Internet
- Master's Degree in Industrial Engineering from the University Europe
- Industrial Electronics and Automation Engineering Degree from the Universidad Europea
- Industrial Technical Engineer by Universidad Politécnica de Madrid





**Ms. Rissanen, Karoliina**

- EMEA Talent Acquisition Specialist at Hexagon Manufacturing Intelligence
- Human Resources Specialist at Oy Sinebrychoff Ab, Carlsberg Group
- Deputy Head of People, Performance and Development at IATA Global Delivery Center
- Customer Service Manager at IATA Global Delivery Center
- Diploma in Tourism from the University Haaga-Helia
- Degree in Human Resources and Labor Relations from the UNIR (UNIR)
- Master's Degree in Protocol and External Relations from Camilo José Cela University
- Postgraduate Certificate in Human Resources Management from the Chartered Institute of Personnel and Development
- Instructor from the International Air Transport Association

**Mr. Armero Fernández, Rafael**

- Business Intelligence Consultant en SDG Group
- Digital Engineer at MI-GSO
- Logistic Engineer at Torrecid SA
- Quality Intern at INDRA
- Degree in Aerospace Engineering from the Polytechnic University of Valencia
- Master's Degree in Professional Development 4.0 from the University of Alcalá

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# Educational Plan

This Hybrid Professional Master's Degree in Data Science Management is designed by a teaching staff made up of authentic references in this field. In this way, they pour into the teaching materials their vast knowledge in subjects such as Logistics Engineering, Software Development or Artificial Intelligence. In this way, the study plan will analyze aspects such as Big Data in business environments, bearing in mind its applications in areas such as Marketing or Communication, as well as the benefits derived from its implementation.

*You will develop advanced competencies to create clear and effective data visualizations, communicating the findings with rigor"*

## **Module 1.** Data Analysis in a Business Organization

1.1. Business Analysis
- 1.1.1. Business Analysis
- 1.1.2. Data Structure
- 1.1.3. Phases and Elements

1.2. Data Analysis in the Business
- 1.2.1. Departmental Scorecards and KPIs
- 1.2.2. Operational, Tactical and Strategic Reports
- 1.2.3. Data Analytics Applied to Each Department
  - 1.2.3.1. Marketing and Communication
  - 1.2.3.2. Commercial
  - 1.2.3.3. Customer Service
  - 1.2.3.4. Purchasing
  - 1.2.3.5. Administration
  - 1.2.3.6. HR
  - 1.2.3.7. Production
  - 1.2.3.8. IT

1.3. Marketing and Communication
- 1.3.1. KPIs for Measurement, Applications and Benefits
- 1.3.2. Marketing Systems and Data Warehouse
- 1.3.3. Implementation of a Data Analytics Framework in Marketing
- 1.3.4. Marketing and Communication Plan
- 1.3.5. Strategies, Prediction and Campaign Management

1.4. Commerce and Sales
- 1.4.1. Contributions of Data Analytics in the Commercial Area
- 1.4.2. Needs of the Sales Department
- 1.4.3. Market Research

1.5. Customer Service
- 1.5.1. Loyalty
- 1.5.2. Personal Coaching and Emotional Intelligence
- 1.5.3. Customer Satisfaction

1.6. Purchasing
- 1.6.1. Data Analysis for Market Research
- 1.6.2. Data Analysis for Competency Research
- 1.6.3. Other Applications

1.7. Administration
- 1.7.1. Needs of the Administration Department
- 1.7.2. Data Warehouse and Financial Risk Analysis
- 1.7.3. Data Warehouse and Credit Risk Analysis

1.8. Human Resources
- 1.8.1. HR and the Benefits of Data Analysis
- 1.8.2. Data Analytics Tools for the HR Department
- 1.8.3. Data Analytics Applications for the HR Department

1.9. Production
- 1.9.1. Data Analysis in a Production Department
- 1.9.2. Applications
- 1.9.3. Benefits

1.10. IT
- 1.10.1. IT Department
- 1.10.2. Data Analysis and Digital Transformation
- 1.10.3. Innovation and Productivity

## **Module 2.** Data and Information Management and Manipulation for Data Science

2.1. Statistics. Variables, Indices and Ratios
- 2.1.1. Statistics
- 2.1.2. Statistical Dimensions
- 2.1.3. Variables, Indices and Ratios

2.2. Type of Data
- 2.2.1. Qualitative
- 2.2.2. Quantitative
- 2.2.3. Characterization and Categories

2.3. Data Knowledge from the Measurements
- 2.3.1. Centralization Measurements
- 2.3.2. Measures of Dispersion
- 2.3.3. Correlation

2.4. Data Knowledge from the Graphs
- 2.4.1. Visualization According to Type of Data
- 2.4.2. Interpretation of Graphic Information
- 2.4.3. Customization of Graphics with R

2.5. Probability
- 2.5.1. Probability
- 2.5.2. Function of Probability
- 2.5.3. Distributions

2.6. Data Collection
- 2.6.1. Methodology of Data Collection
- 2.6.2. Data Collection Tools
- 2.6.3. Data Collection Channels

2.7. Data Cleaning
- 2.7.1. Phases of Data Cleansing
- 2.7.2. Data Quality
- 2.7.3. Data Manipulation (with R)

2.8. Data Analysis, Interpretation and Evaluation of Results
- 2.8.1. Statistical Measures
- 2.8.2. Relationship Indices
- 2.8.3. Data Mining

2.9. Data Warehouse
- 2.9.1. Components
- 2.9.2. Design

2.10. Data Availability
- 2.10.1. Access
- 2.10.2. Uses
- 2.10.3. Security

## **Module 3.** IoT Devices and Platforms as the Basis for Data Science

3.1. Internet of Things
- 3.1.1. Internet of the Future, Internet of Things
- 3.1.2. The Industrial Internet Consortium

3.2. Architecture of Reference
- 3.2.1. The Architecture of Reference
- 3.2.2. Layers
- 3.2.3. Components

3.3. Sensors and IoT Devices
- 3.3.1. Principal Components
- 3.3.2. Sensors and Actuators

3.4. Communications and Protocols
- 3.4.1. Protocols. OSI Model
- 3.4.2. Communication Technologies

3.5. Cloud Platforms for IoT and IIoT
- 3.5.1. General Purpose Platforms
- 3.5.2. Industrial Platforms
- 3.5.3. Open Code Platforms

3.6. Data Management on IoT Platforms
- 3.6.1. Data Management Mechanisms. Open Data
- 3.6.2. Data Exchange and Visualization

3.7. IoT Security
- 3.7.1. Requirements and Security Areas
- 3.7.2. Security Strategies in IIoT

3.8. Applications of IoT
- 3.8.1. Intelligent Cities
- 3.8.2. Health and Fitness
- 3.8.3. Smart Home
- 3.8.4. Other Applications

3.9. Applications of IIoT
- 3.9.1. Fabrication
- 3.9.2. Transport
- 3.9.3. Energy
- 3.9.4. Agriculture and Livestock
- 3.9.5. Other Sectors

3.10. Industry 4.0
- 3.10.1. IoRT (Internet of Robotics Things)
- 3.10.2. 3D Additive Manufacturing
- 3.10.3. Big Data Analytics

## **Module 4.** Graphical Representation of Data Analysis

4.1. Exploratory Analysis
- 4.1.1. Representation for Information Analysis
- 4.1.2. The Value of Graphical Representation
- 4.1.3. New Paradigms of Graphical Representation

4.2. Optimization for Data Science
- 4.2.1. Color Range and Design
- 4.2.2. Gestalt in Graphic Representation
- 4.2.3. Errors to Avoid and Advice

4.3. Basic Data Sources
- 4.3.1. For Quality Representation
- 4.3.2. For Quantity Representation
- 4.3.3. For Time Representation

4.4. Complex Data Sources
- 4.4.1. Files, Lists and Databases
- 4.4.2. Open Data
- 4.4.3. Continuous Data Generation

4.5. Types of Graphs
- 4.5.1. Basic Representations
- 4.5.2. Block Representation
- 4.5.3. Representation for Dispersion Analysis
- 4.5.4. Circular Representations
- 4.5.5. Bubble Representations
- 4.5.6. Geographical Representations

4.6. Types of Visualization
- 4.6.1. Comparative and Relational
- 4.6.2. Distribution
- 4.6.3. Hierarchical

4.7. Report Design with Graphic Representation
- 4.7.1. Application of Graphs in Marketing Reports
- 4.7.2. Application of Graphs in Scorecards and KPIs
- 4.7.3. Application of Graphs in Strategic Plans
- 4.7.4. Other Uses: Science, Health, Business

4.8. Graphic Narration
- 4.8.1. Graphic Narration
- 4.8.2. Evolution
- 4.8.3. Uses

4.9. Tools Oriented Towards Visualization
- 4.9.1. Advanced Tools
- 4.9.2. Online Software
- 4.9.3. Open Source

4.10. New Technologies in Data Visualization
- 4.10.1. Systems for Virtualization of Reality
- 4.10.2. Reality Enhancement and Improvement Systems
- 4.10.3. Intelligent Systems

## **Module 5.** Data Science Tools

5.1. Data Science
- 5.1.1. Data Science
- 5.1.2. Advanced Tools for Data Scientists

5.2. Data, Information and Knowledge
- 5.2.1. Data, Information and Knowledge
- 5.2.2. Types of Data
- 5.2.3. Data Sources

5.3. From Data to Information
- 5.3.1. Data Analysis
- 5.3.2. Types of Analysis
- 5.3.3. Extraction of Information from a Dataset

5.4. Extraction of Information Through Visualization
- 5.4.1. Visualization as an Analysis Tool
- 5.4.2. Visualization Methods
- 5.4.3. Visualization of a Data Set

5.5. Data Quality
- 5.5.1. Quality Data
- 5.5.2. Data Cleaning
- 5.5.3. Basic Data Pre-Processing

5.6. Dataset
- 5.6.1. Dataset Enrichment
- 5.6.2. The Curse of Dimensionality
- 5.6.3. Modifications of the Data Set

5.7. Unbalance
- 5.7.1. Classes of Unbalance
- 5.7.2. Unbalance Mitigation Techniques
- 5.7.3. Balancing a Dataset

5.8. Unsupervised Models
- 5.8.1. Unsupervised Model
- 5.8.2. Methods
- 5.8.3. Classification with Unsupervised Models

5.9. Supervised Models
- 5.9.1. Supervised Model
- 5.9.2. Methods
- 5.9.3. Classification with Supervised Models

5.10. Tools and Good Practices
- 5.10.1. Good Practices for Data Scientists
- 5.10.2. The Best Model
- 5.10.3. Useful Tools

## **Module 6.** Data Mining: Selection, Pre-Processing and Transformation

6.1. Statistical Inference
- 6.1.1. Descriptive Statistics vs. Statistical Inference
- 6.1.2. Parametric Procedures
- 6.1.3. Non-Parametric Procedures

6.2. Exploratory Analysis
- 6.2.1. Descriptive Analysis
- 6.2.2. Visualization
- 6.2.3. Data Preparation

6.3. Data Preparation
- 6.3.1. Integration and Data Cleaning
- 6.3.2. Normalization of Data
- 6.3.3. Transforming Attributes

6.4. Missing Values
- 6.4.1. Treatment of Missing Values
- 6.4.2. Maximum Likelihood Imputation Methods
- 6.4.3. Missing Value Imputation Using Machine Learning

6.5. Noise in the Data
- 6.5.1. Noise Classes and Attributes
- 6.5.2. Noise Filtering
- 6.5.3. The Effect of Noise

6.6. The Curse of Dimensionality
- 6.6.1. Oversampling
- 6.6.2. Undersampling
- 6.6.3. Multidimensional Data Reduction

6.7. From Continuous to Discrete Attributes
- 6.7.1. Continuous Vs. Discrete
- 6.7.2. Discretization Process

6.8. The Data
- 6.8.1. Data Selection
- 6.8.2. Prospects and Selection Criteria
- 6.8.3. Selection Methods

6.9. Instance Selection
- 6.9.1. Methods for Instance Selection
- 6.9.2. Prototype Selection
- 6.9.3. Advanced Methods for Instance Selection

6.10. Data Pre-processing in Big Data Environments
- 6.10.1. Big Data
- 6.10.2. "Classic" Pre-Processing vs. Massive
- 6.10.3. Smart Data

## **Module 7.** Predictability and Analysis of Stochastic Phenomena

7.1. Time Series
- 7.1.1. Time Series
- 7.1.2. Utility and Applicability
- 7.1.3. Related Case Studies

7.2. Time Series
- 7.2.1. Trend Seasonality of ST
- 7.2.2. Typical Variations
- 7.2.3. Waste Analysis

7.3. Typology
- 7.3.1. Stationary
- 7.3.2. Non-Stationary
- 7.3.3. Transformations and Settings

7.4. Time Series Schemes
- 7.4.1. Additive Scheme (Model)
- 7.4.2. Multiplicative Scheme (Model)
- 7.4.3. Procedures to Determine the Type of Model

7.5. Basic Forecast Methods
- 7.5.1. Media
- 7.5.2. Naive
- 7.5.3. Seasonal Naive
- 7.5.4. Method Comparison



7.6. Waste Analysis
- 7.6.1. Autocorrelation
- 7.6.2. ACF of Waste
- 7.6.3. Correlation Test

7.7. Regression in the Context of Time Series
- 7.7.1. ANOVA
- 7.7.2. Fundamentals
- 7.7.3. Practical Applications

7.8. Predictive Methods of Time Series
- 7.8.1. ARIMA
- 7.8.2. Exponential Smoothing

7.9. Manipulation and Analysis of Time Series with R
- 7.9.1. Data Preparation
- 7.9.2. Identification of Patterns
- 7.9.3. Model Analysis
- 7.9.4. Prediction

7.10. Combined Graphical Analysis with R
- 7.10.1. Normal Situations
- 7.10.2. Practical Application for the Resolution of Simple Problems
- 7.10.3. Practical Application for the Resolution of Advanced Problems

## **Module 8.** Design and Development of Intelligent Systems

8.1. Data Pre-Processing
- 8.1.1. Data Pre-Processing
- 8.1.2. Data Transformation
- 8.1.3. Data Mining

8.2. Machine Learning
- 8.2.1. Supervised and Unsupervised Learning
- 8.2.2. Reinforcement Learning
- 8.2.3. Other Learning Paradigms

8.3. Classification Algorithms
- 8.3.1. Inductive Machine Learning
- 8.3.2. SVM and KNN
- 8.3.3. Metrics and Scores for Ranking

8.4. Regression Algorithms
- 8.4.1. Lineal Regression, Logistical Regression and Non-Lineal Models
- 8.4.2. Time Series
- 8.4.3. Metrics and Scores for Regression

8.5. Clustering Algorithms
- 8.5.1. Hierarchical Clustering Techniques
- 8.5.2. Partitional Clustering Techniques
- 8.5.3. Metrics and Scores for Clustering

8.6. Association Rules Techniques
- 8.6.1. Methods for Rule Extraction
- 8.6.2. Metrics and Scores for Association Rule Algorithms

8.7. Advanced Classification Techniques. Multiclassifiers
- 8.7.1. Bagging Algorithms
- 8.7.2. Random "Forests Sorter"
- 8.7.3. "Boosting" for Decision Trees

8.8. Probabilistic Graphical Models
- 8.8.1. Probabilistic Models
- 8.8.2. Bayesian Networks. Properties, Representation and Parameterization
- 8.8.3. Other Probabilistic Graphical Models

8.9. Neural Networks
- 8.9.1. Machine Learning with Artificial Neural Networks
- 8.9.2. Feed Forward Networks

8.10. Deep Learning
- 8.10.1. Deep Feed Forward Networks
- 8.10.2. Convolutional Neural Networks and Sequence Models
- 8.10.3. Tools for Implementing Deep Neural Networks

## **Module 9.** Architecture and Systems for Intensive Use of Data

9.1. Non-Functional Requirements. Pillars of Big Data Applications
- 9.1.1. Reliability
- 9.1.2. Adaptation
- 9.1.3. Maintainability

9.2. Data Models
- 9.2.1. Relational Model
- 9.2.2. Document Model
- 9.2.3. Graph Type Data Model

9.3. Databases. Storage Management and Data Recovery
- 9.3.1. Hash Index
- 9.3.2. Structured Log Storage
- 9.3.3. Trees B

9.4. Data Coding Formats
- 9.4.1. Language-Specific Formats
- 9.4.2. Standardized Formats
- 9.4.3. Binary Coding Formats
- 9.4.4. Data Stream Between Processes

9.5. Replication
- 9.5.1. Objectives of Replication
- 9.5.2. Replication Models
- 9.5.3. Problems with Replication

9.6. Distributed Transactions
- 9.6.1. Transaction
- 9.6.2. Protocols for Distributed Transactions
- 9.6.3. Serializable Transactions

9.7. Partitions
- 9.7.1. Forms of Partitioning
- 9.7.2. Secondary Index Interaction and Partitioning
- 9.7.3. Partition Rebalancing

9.8. Processing of Offline Data
- 9.8.1. Batch Processing
- 9.8.2. Distributed File Systems
- 9.8.3. MapReduce

9.9. Data Processing in Real Time
- 9.9.1. Types of Message Broker
- 9.9.2. Representation of Databases as Data Streams
- 9.9.3. Data Stream Processing

9.10. Practical Applications in Business
- 9.10.1. Consistency in Readings
- 9.10.2. Holistic Focus of Data
- 9.10.3. Scaling of a Distributed Service

## **Module 10.** Practical Application of Data Science in Business Sectors

10.1. Health Sector
- 10.1.1. Implications of AI and Data Analysis in the Health Sector
- 10.1.2. Opportunities and Challenges

10.2. Risks and Trends in the Health Sector
- 10.2.1. Use in the Health Sector
- 10.2.2. Potential Risks Related to the Use of AI

10.3. Financial Services
- 10.3.1. Implications of AI and Data Analysis in the Financial Services Sector
- 10.3.2. Use in the Financial Services
- 10.3.3. Potential Risks Related to the Use of AI

10.4. Retail
- 10.4.1. Implications of AI and Data Analysis in the Retail Sector
- 10.4.2. Use in Retail
- 10.4.3. Potential Risks Related to the Use of AI

10.5. Industry 4.0
- 10.5.1. Implications of AI and Data Analysis in Industry 4.0
- 10.5.2. Use in the 4.0 Industry

10.6. Risks and Trends in Industry 4.0
- 10.6.1. Potential Risks Related to the Use of AI

10.7. Public Administration
- 10.7.1. Implications of AI and Data Analytics for Public Administration
- 10.7.2. Use in Public Administration
- 10.7.3. Potential Risks Related to the Use of AI

10.8. Educational
- 10.8.1. Implications of AI and Data Analysis in Education
- 10.8.2. Potential Risks Related to the Use of AI

10.9. Forestry and Agriculture
- 10.9.1. Implications of AI and Data Analysis in Forestry and Agriculture
- 10.9.2. Use in Forestry and Agriculture
- 10.9.3. Potential Risks Related to the Use of AI

10.10. Human Resources
- 10.10.1. Implications of AI and Data Analysis in Human Resources
- 10.10.2. Practical Applications in the Business World
- 10.10.3. Potential Risks Related to the Use of AI

*You will be able to plan, execute and manage innovative Data Science projects"*

07

# Clinical Internship

After completing the online theoretical period, this program includes a internship phase in a reference institution. With a duration of 120 hours, graduates will join a multidisciplinary work team made up of professionals from fields such as Data Science Management, Branding and Marketing, among others. These specialists will help students to handle the most sophisticated IT tools and ensure that their experience is enriching.

*You will master Data Analytics to monitor companies' campaigns with precision and contribute to more informed decisions"*

The Internship Program in Data Science Management will be carried out in a reference institution, with extensive professional experience in this sector. It should be noted that this itinerary will last 3 weeks, with a schedule of 8 hours from Monday to Friday. During this phase, graduates will learn how to make the most of the management of technological tools such as Machine Learning, Internet of Things or Data Mining. In this way, students will acquire advanced skills that will open up a wide range of job opportunities.

This practical experience is an ideal opportunity for individuals who wish to specialize in Data Science Management, an emerging and booming field. After completing this program, graduates will become highly competitive experts in the job market. This will allow them to make the leap to the most prestigious companies to contribute their solid knowledge and skills on subjects such as Artificial Intelligence or Big Data. In this way, graduates will help organizations reduce costs and maximize the potential of their resources.

In this way, the program is presented as a unique opportunity for graduates to learn by working. It is a new way of understanding and integrating Data Science Management procedures in real work scenarios, which will allow students to optimize their skills.

The practical part will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other fellow trainees that facilitate teamwork and multidisciplinary integration as transversal competencies for computer science praxis (learning to be and learning to relate).

The procedures described below will be the basis of the practical part of the course, and their implementation will be subject to the center's own availability and workload, the proposed activities being the following:

| Module | Practical Activity |
|---|---|
| Device Management and IoT Platforms as a Basis for Data Science | Manage IoT sensors and devices |
| | Work with OSI model protocols |
| | Work with Cloud platforms for IoT and IIoT |
| | Delve into data management models using open data |
| | Implement IIoT security strategies |
| | Develop IoRT (IInternet of Robotics Things) protocols |
| Use of Data Science Tools | Conduct data analysis in different contexts |
| | Learn in detail the types of analysis through practice |
| | Use the extraction of information from a Dataset |
| | Approach the Dataset from the base to its exhaustive handling |
| | Put into practice the balancing in the Dataset |
| Design and Development of Intelligent Systems and Data Intensive Systems | Work in data processing and transformation |
| | Use classification algorithms |
| | Implement the main strategies of linear regression, logistic regression and non-linear models |
| | Implement Bagging algorithms |
| | Work in relational, document and network models |
| | Use databases for data storage and retrieval management |
| | Know in detail the data coding formats |

| Module | Practical Activity |
|---|---|
| Practical Application of Data Science in Business Sectors | Practical application of data science in the various sectors of the company |
| | Address the different phases and elements of data analytics |
| | Development of data analytics applied to a department within the enterprise |
| | Approach of different cases through strategies, prediction and campaign management |
| | Master time series |
| | Understand time series schemes in detail |
| | Apply basic forecast methods |
| | Master residual analysis |

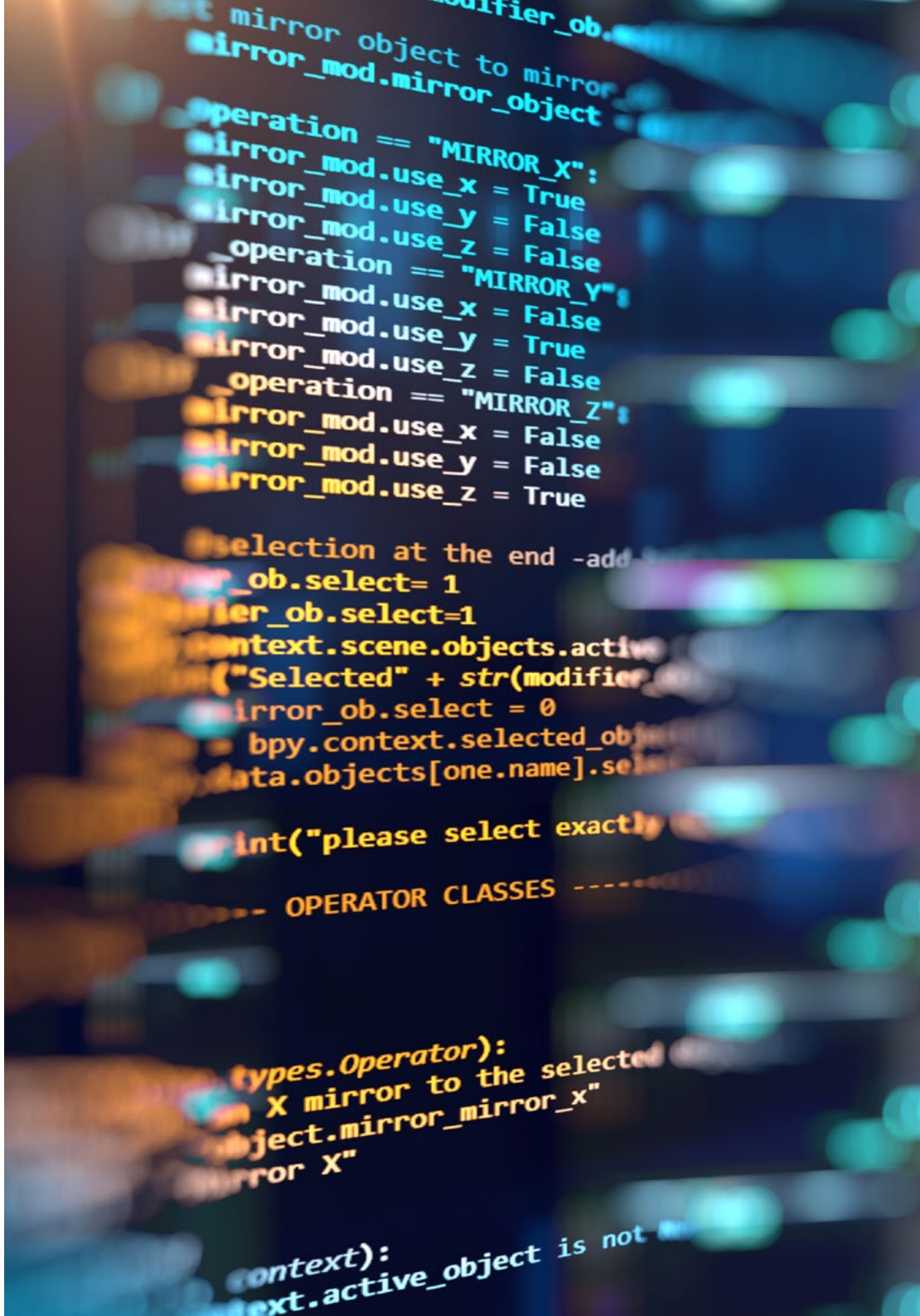
*You will develop the most rigorous predictive models using advanced Machine Learning algorithms and make highly informed strategic decisions"*

## Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.



## General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

1. TUTOR: During the Hybrid Professional Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Hybrid Professional Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who pass the Hybrid Professional Master's Degree will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: the Hybrid Professional Master's Degree shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Hybrid Professional Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Hybrid Professional Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed.

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

08

# Where Can I Do the Internship?

This Hybrid Professional Master's Degree includes in its academic itinerary a internship in one of the most prestigious institutions in the field of Branding and Marketing, during a period of 3 weeks.  In this way, students will be able to put into practice everything they have learned about Data Science Management in a real work scenario. In addition, during this stage the graduates will be guided by professionals in this field, who will help them both to maximize their skills and to get the most out of the program.

*Immerse yourself in the field of Data Science Management with a degree that will train you not only theoretically, but also practically in a reference institution"*

The student will be able to complete the practical part of this Hybrid Professional Master's Degree at the following centers:


### Ogilvy Barcelona

Country
Spain

City
Barcelona

Address: Calle Bolivia 68-70, 08018, Barcelona

Ogilvy is a pioneer in Pervasive Advertising, Marketing and Corporate Communications.

**Related internship programs:**
- Artificial Intelligence in Design
- Personal Brand Construction

*Boost your career path with holistic teaching, allowing you to advance both theoretically and practically"*

09

# Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## TECH Business School uses the Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

*At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"*


*This program prepares you to face business challenges in uncertain environments and achieve business success.*

*Our program prepares you to face new challenges in uncertain environments and achieve success in your career.*

## A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch to present executives with challenges and business decisions at the highest level, whether at the national or international level. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and business reality is taken into account.

> *You will learn, through collaborative activities and real cases, how to solve complex situations in real business environments"*

The case method has been the most widely used learning system among the world's leading business schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They must integrate all their knowledge, research, argue and defend their ideas and decisions.

## Relearning Methodology

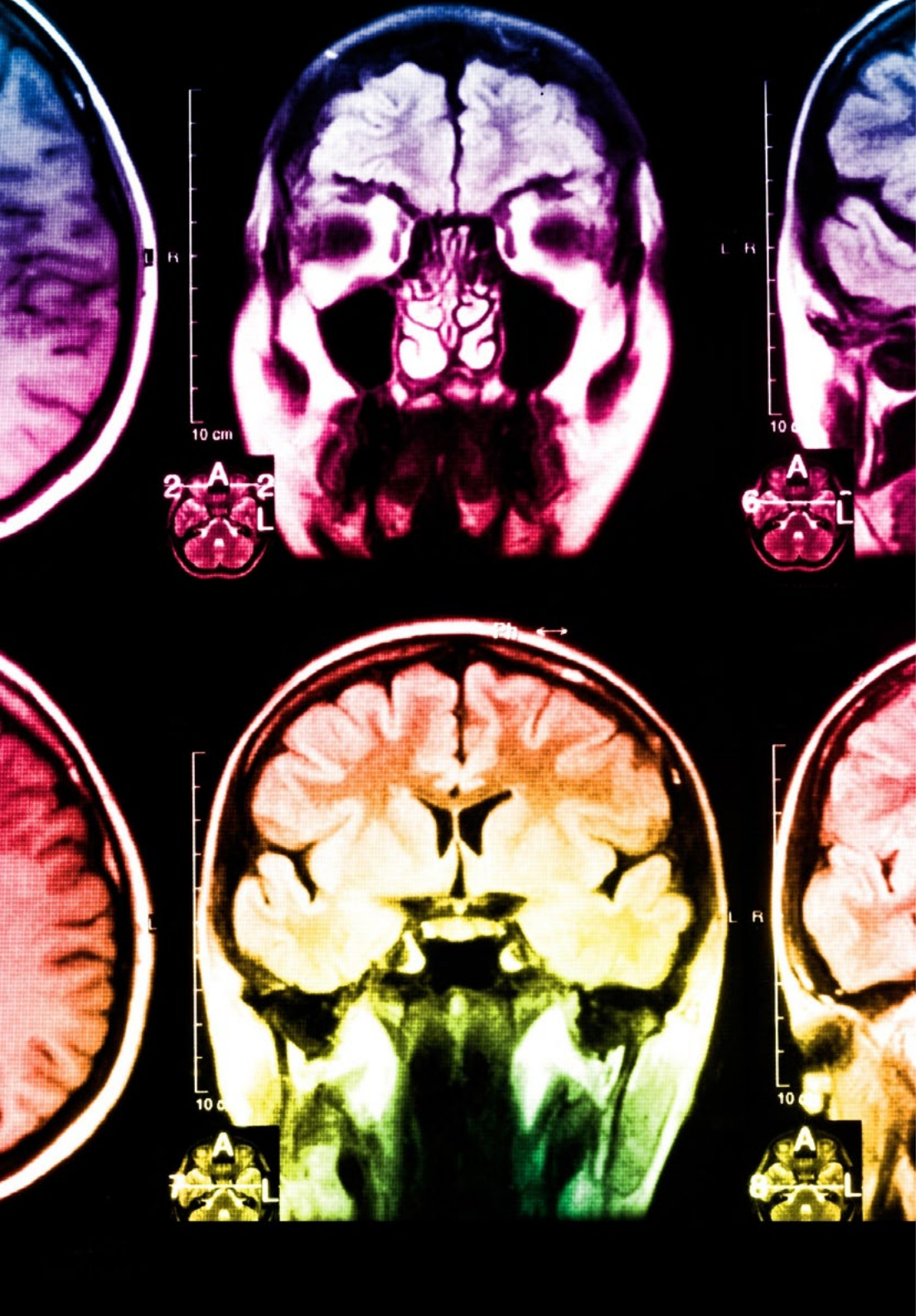
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

*Our online system will allow you to organize your time and learning pace, adapting it to your schedule. You will be able to access the contents from any device with an internet connection.*

At TECH you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our online business school is the only one in the world licensed to incorporate this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. With this methodology we have trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, markets, and financial instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

This program offers the best educational material, prepared with professionals in mind:

### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

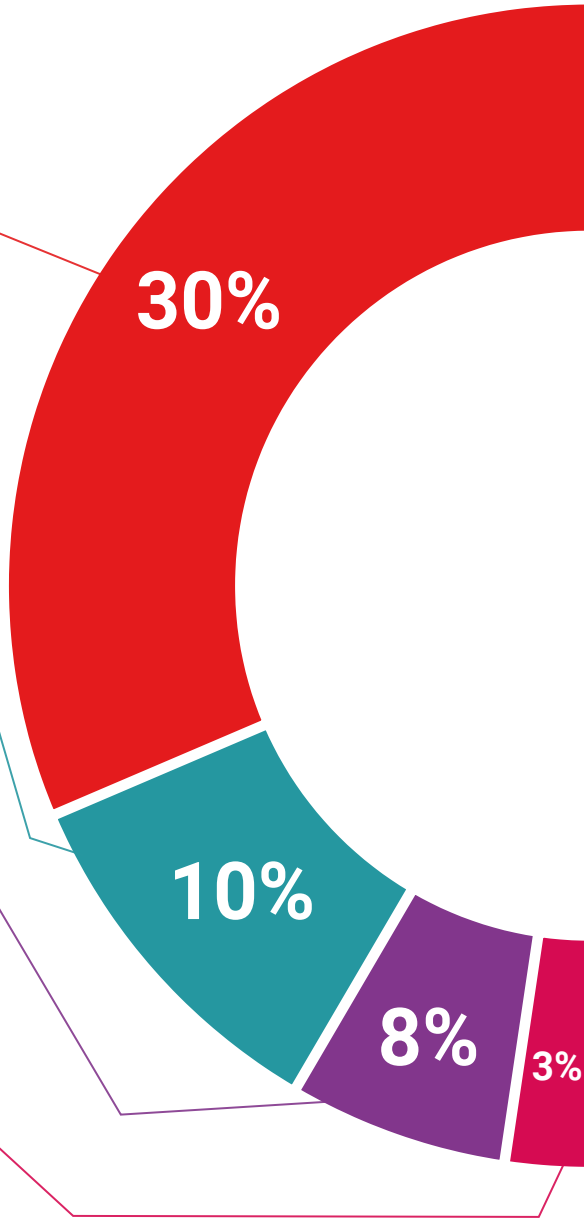
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

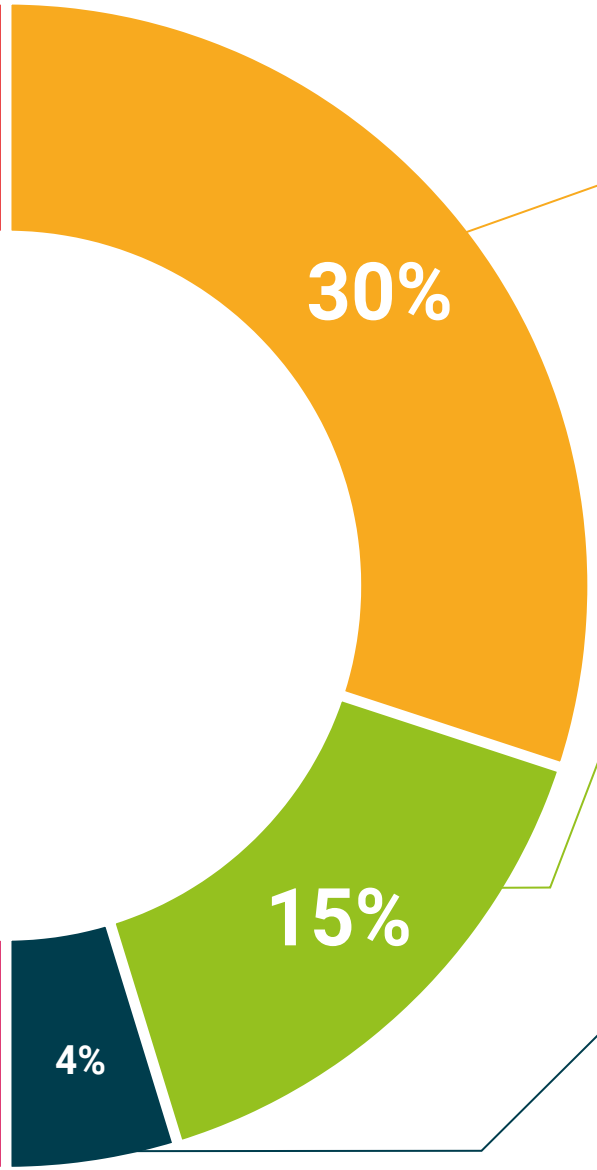
### Management Skills Exercises

They will carry out activities to develop specific executive competencies in each thematic area. Practices and dynamics to acquire and develop the skills and abilities that a high-level manager needs to develop in the context of the globalization we live in.

### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.






### Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best senior management specialists in the world.

### Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

10

# Certificate

The Hybrid Professional Master's Degree in Data Science Management (DSO, Data Science Officer) students, in addition to the most rigorous and up-to-date education, access to a Hybrid Professional Master's Degree diploma issued by TECH Global University.

*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"*

This private qualification will allow you to obtain an **Hybrid Professional Master's Degree in Data Science Management (DSO, Data Science Officer)** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University**, is an official European University publicly recognized by the Government of Andorra ***(official bulletin)***. Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

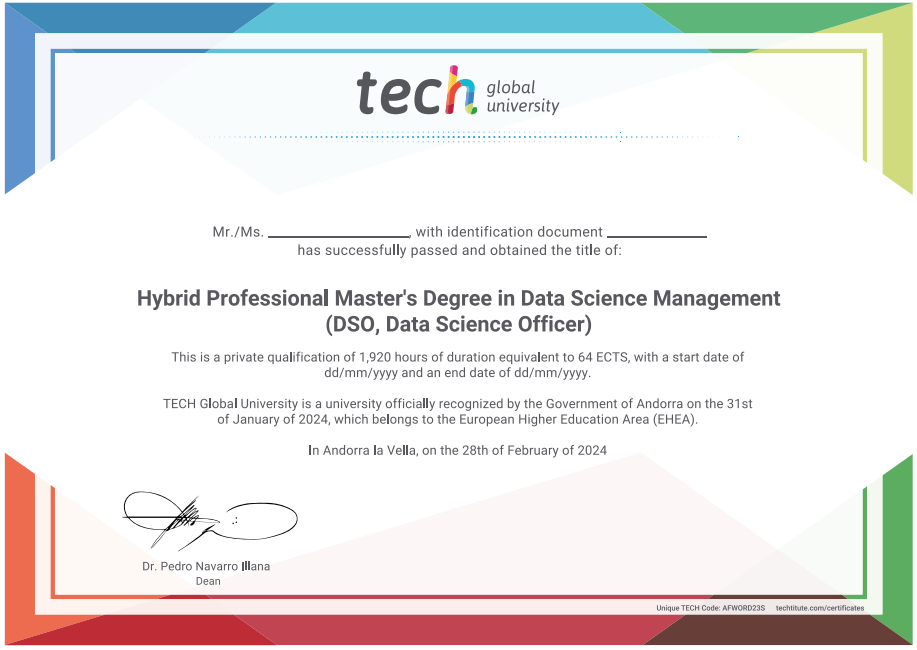
This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Hybrid Professional Master's Degree in Data Science Management (DSO, Data Science Officer)**

Modality: **Hybrid (Online + Internship)**

Duration: **12 months**

Accreditation: **64 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

**Hybrid Professional Master's Degree in Data Science Management (DSO, Data Science Officer)**

This is a private qualification of 1,920 hours of duration equivalent to 64 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Dean

Unique TECH Code: AFWORD23S techtitute.com/certificates


Hybrid Professional Master's Degree in Data Science Management (DSO, Data Science Officer)

General Structure of the Syllabus

| Subject type | ECTS |
|---|---|
| Compulsory (CO) | 60 |
| Optional (OP) | 0 |
| External Work Placement (WP) | 4 |
| Master's Degree Thesis (MDT) | 0 |
| | 64 |

General Structure of the Syllabus

| Year | Subject | ECTS | Type |
|---|---|---|---|
| 1º | Data Analysis in a Business Organization | 6 | CO |
| 1º | Data and Information Management and Manipulation for Data Science | 6 | CO |
| 1º | IoT Devices and Platforms as the Basis for Data Science | 6 | CO |
| 1º | Graphical Representation of Data Analysis | 6 | CO |
| 1º | Data Science Tools | 6 | CO |
| 1º | Data Mining. Selection, Pre-Processing and Transformation | 6 | CO |
| 1º | Predictability and Analysis of Stochastic Phenomena | 6 | CO |
| 1º | Design and Development of Intelligent Systems | 6 | CO |
| 1º | Architecture and Systems for Intensive Use of Data | 6 | CO |
| 1º | Practical Application of Data Science in Business Sectors | 6 | CO |

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Dean

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*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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# Hybrid Professional Master's Degree

## Data Science Management (DSO, Data Science Officer)

Modality: **Hybrid (Online + Internship)**
Duration: **12 months**
Certificate: **TECH Global University**
Credits: **60 + 4 ECTS**

# Hybrid Professional Master's Degree

## Data Science Management (DSO, Data Science Officer)

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