Erasmus Centre for Data Analytics

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Hands-on preparation for a data-driven future

Leadership Challenge with Data Analytics

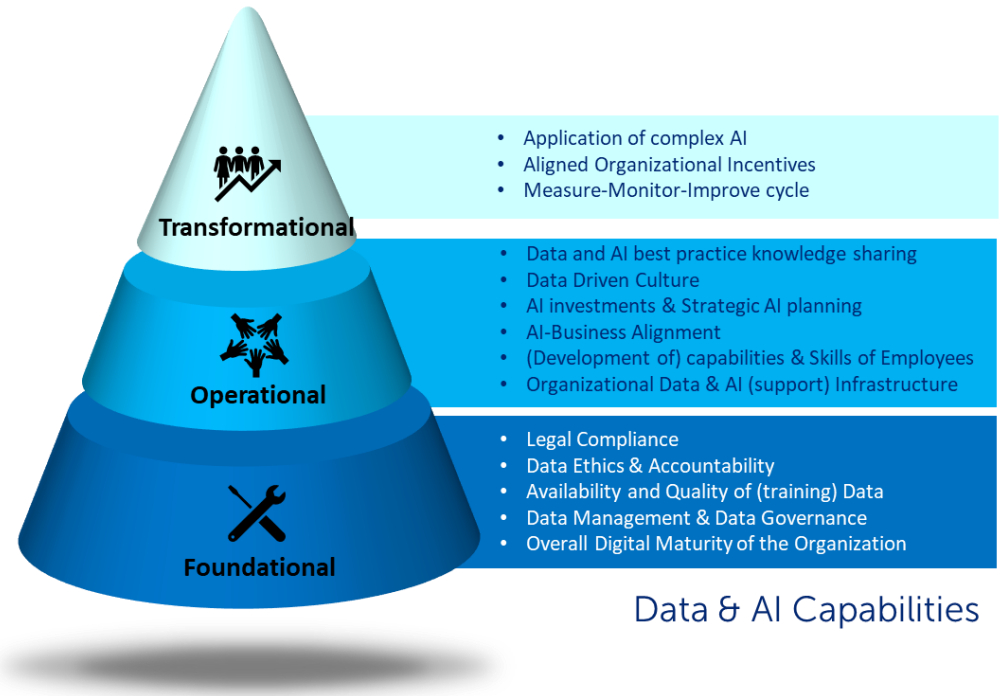
Mastering data, digitalization & AI

Edition Spring 2023

1. Introduction

The use of data and application of Artificial Intelligence (AI) will without any doubt change the way we do business in the future. As a matter of fact, today it is already changing businesses, governmental organizations, and educational institutions. But what is needed to make Artificial Intelligence a valuable part of the way we do business ourselves? Many experts believe that successful Artificial Intelligence applications hinge on the so-called b-smact technologies (Blockchain, social media, Mobile use, Analytics, Cloud and Internet of Things or better known as IoT). The fuelling component of those technologies is Big Data, which will require a whole new set of skills and ways of working. Understanding and working with new technologies for big data collection, analysis and prediction will not create only huge societal and business opportunities, but also ethical, legal, privacy and technical issues concerning every part of the organization. It will influence customer relationships, redefine how organizations develop new products and services, change how operations are organized and managed, and provide the basis for new business models and service offerings. It will demand a data driven focus from everyone involved in the organization.

This training programme combines the science of business, data, and societal perspectives. Participants – who usually join with a **team of 3 to 6 persons** - acquire a broad knowledge and diverse skills related to data analytics, which may lead to new insights that drive new value creation opportunities. Such learning by doing manifests itself along two dimensions: across multiple levels (individual, group, and corporate) and across multiple functions.



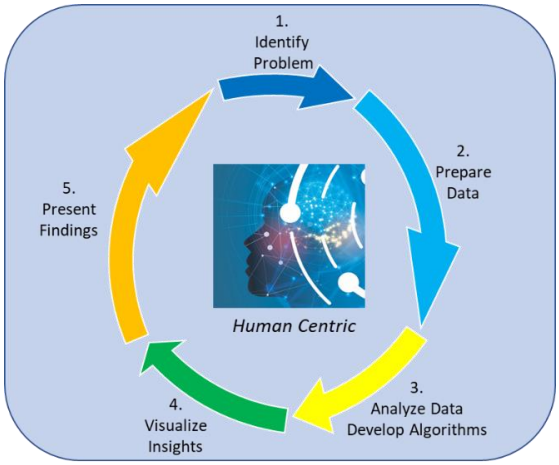
foundations for becoming a data-driven organization

2. Learning Objectives of the programme

The programme has five learning objectives:

1. To understand the foundations for becoming a data-driven organization, as a basis for exploiting insights from analytics and AI.

2. To learn the **complete data analytics lifecycle**, from data exploration, data engineering, data analysis, data visualization up to insight derived from data.
3. To discover new ways to apply data technologies to design and implement innovative and value creating business and societal applications.
4. To improve both the business skills of technically focused data scientists and the capabilities to apply quantitative methods by the business representatives. Hereby mutual understanding is created, which supports collaboration.
5. To broaden data scientists' and business representatives understanding of psychological factors, privacy, security, ethics, and accountability and to stimulate critical thinking.

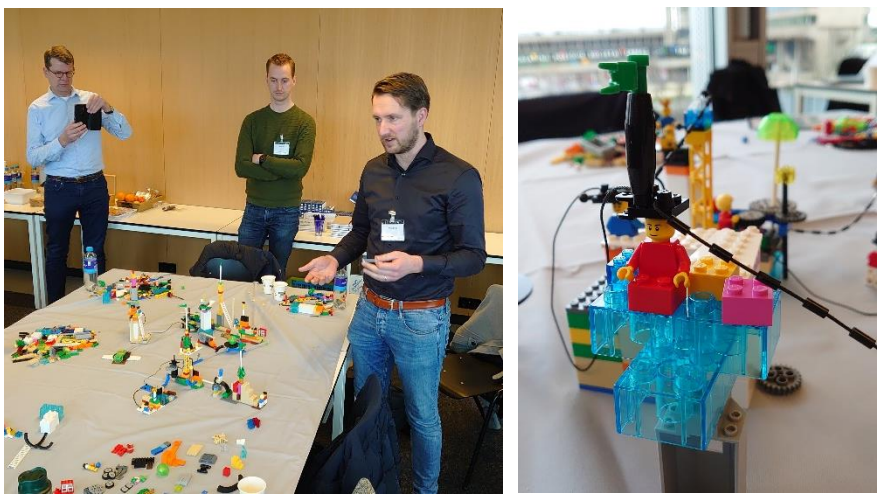


the data science & analytics lifecycle

3. Unique elements of the programme

The programme offers six unique elements:

1. Holistic (considering the complete system) with wide range of topics that will be covered
2. It plays a key role in the organisational transformation towards becoming a data driven organization, as organisations discover in teams how to approach this challenge by doing & experiencing.
3. It is action based with a hands-on approach, by developing and improving organization specific use cases as part of an action learning project.
4. It places the participants in multidisciplinary teams with senior executives and supervisors to facilitate implementation of the business applications in the organization. This supports team building.
5. It inspires participants through peer-learning and an outside-in perspective because of its cross-industry, cross-functional and international set-up.
6. It offers in-depth individual coaching of teams by both academics and business consultants.



Introduction serious Lego workshop

4. Participants

The programme is aimed at multi-disciplinary teams from companies and governmental organizations composed of 3 to 6 persons, with representatives coming ((ideally) from the following 3 domains in the organization:

- Data user / business representative (for example department managers, business analysts, financial controllers, policy makers)
- Information officer (for example CIOs, CDOs, information managers, architects, BI analysts, data officers, data engineers, data scientists)
- ICT specialist (for example IT managers, BI developers, IT specialists)

A separate **executive track** is organized. A member from the executive board / sponsor joins the team during intake, meets other executives in an introductory executive track and participates in the final closure event of the programme.

Individuals that are interested to join the programme are placed in a "solo team"[1], where they jointly work on an action learning project from one of the participants.

5. Action learning project

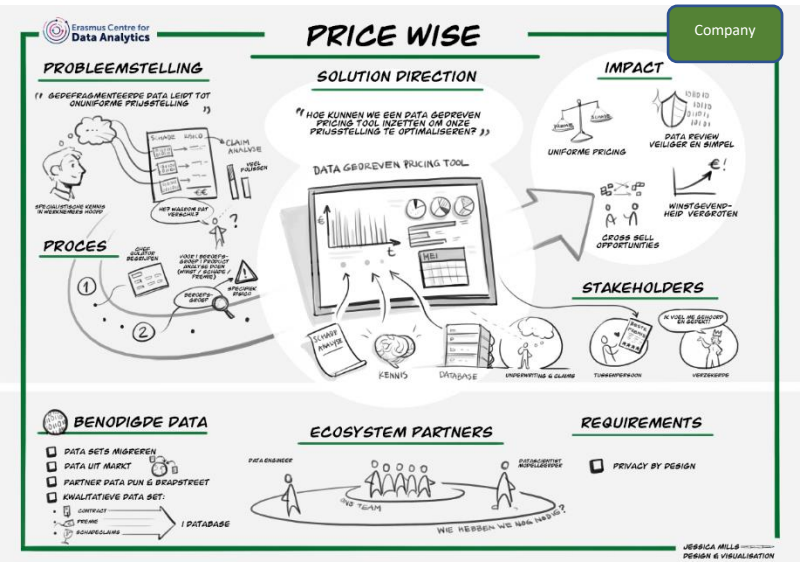
Participating teams bring their own use case (with data sets) to work on during the programme, as part of an action learning project. Here we apply the concept of ***think big, start small, scale fast.*** Previous alumni teams have worked on several interesting action learning projects towards a proof of concept, applying all the learnings of the programme. In many cases, these were followed up by implementation into the organization.

Alumni team	Use Case description and results
sanoma	Define website recommendation algorithms based on collaborative filtering, optimizing multi-channel revenues.
Lufthansa	Predict airplane loads through advanced weight calculations, optimizing fuel consumption of aircraft.
alliander	Predict outages in the grid and resolve these faster through asset health analytics (recommendations) using data generated via sensors in the existing cable infrastructure.
randstad	Increase the quality and satisfaction of the matching of candidates to job opportunities through a data driven matching approach.
DSM	Optimize and predict the accuracy of demand forecasts, creating value by reducing the operating working capital required.
kpn	Through improved call centre analytics, developed analytical models to better plan and predict the number of inbound calls. This optimizes capacity planning, allowing better scheduling of call centre agents and real-time detection of abnormalities.

[1] A solo team can be established when at least three individuals enroll for the program

Alumni team	Use Case description and results
Den Haag	Increase the effectiveness of the Haagse Pand Brigade (HPB) so that more abuses can be tackled in a targeted manner with less money and people. The result: advice and a prototype with which HPB can combine knowledge and human decision making with advice from automated systems. Privacy by design and the optimal mix between humans and machines to properly weigh up ethical dilemmas were starting points of the solution.
ING	Improve detection of suspicious transactions. Answer the question: how to reduce false positives and increase false negatives as a compliancy measure.
SIEMENS Ingenuity for life	Development of an algorithm and dashboard to improve the matching of field force agents to customers' sites in the context of maintenance of equipment. This results in improved customer and employee satisfaction, reduction of costs and reduction of CO2 emissions.
Gemeente Rotterdam	Visualize topographically the energy transformation challenges policy makers face in the municipality of Rotterdam. Based on different data sources and a recommendation algorithm, building owners and policy makers are guided in transitioning from fossil fuels to sustainable alternatives

A use case workshop in the beginning of the programme provides a solid basis for the definition of the action learning project. During the programme four coaching sessions are organized to discuss the progress of the action learning project and one of our professors and a dedicated business coach provide in depth coaching support.

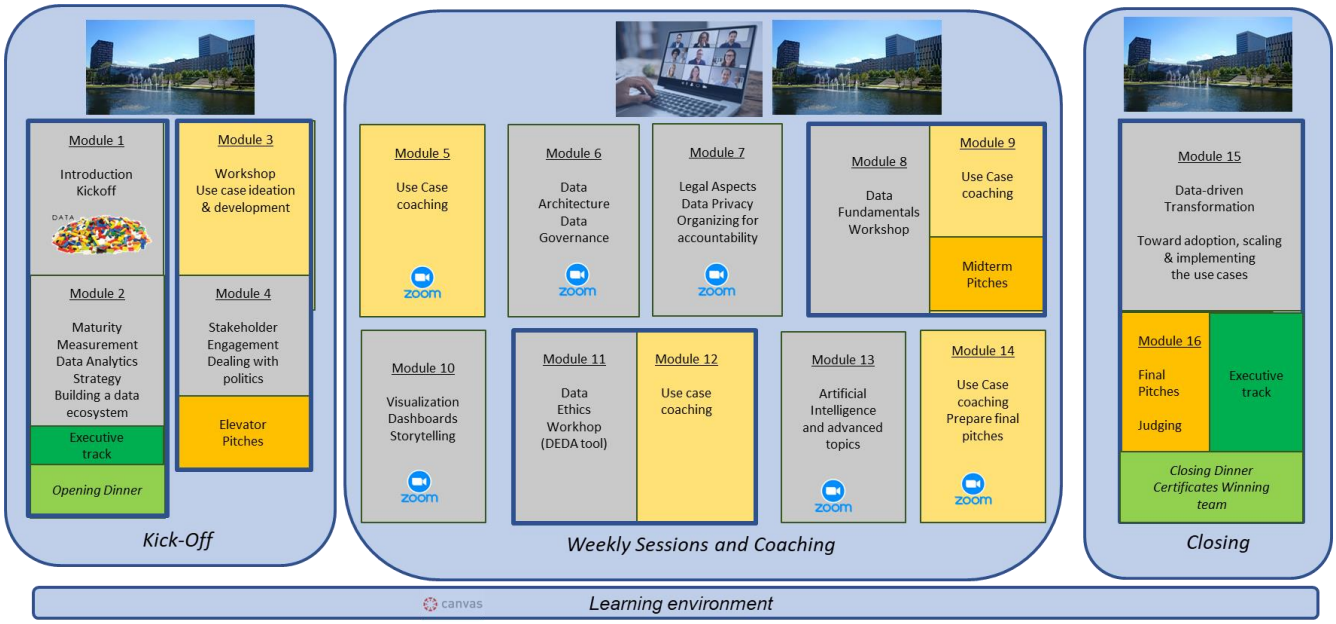


Example of use case visualization for a financial service company

Teamwork use case workshop

6. Programme Design

Forthcoming edition starts March 22, 2023. This edition will be blended[2], with eight modules delivered physically on the **campus of Erasmus University Rotterdam**, while the other six modules are offered online via interactive Zoom sessions (see schedule below). The programme features 5 lunches and two dinner sessions.



Introduction kick-off programme

Module	Topic	Subtopics	Date	Time
1	Introduction & kick-off,	• Introduction programme & participants • Serious Lego workshop	22-3-2023	9.00- 9.30 9.30-12.30
1	*Lunch*		22-3-2023	12.30-13.30
2	Data analytics maturity	• Discuss results Maturity Measurement	22-3-2023	13.30-14.30
2	Data analytics strategy	• Maturity Measurement • Data driven strategy • Data driven and platform business models • Leadership in data analytics	22-3-2023	14.30-17.00
2	Executive track	• Leadership challenges in transforming towards a data driven organization • Introduction and summary of the programme	22-3-2023	16.00-17.00
2		• Welcome Dinner (participants and executives)	22-3-2023	17.30-20.00
3	*Use case workshop*	• Alumni team presentation • Workshop – action learning project use case development using Miro boards	23-3-2023	9.00-12.30
3	*Lunch*		23-3-2023	12.30-13.30
4	Stakeholder Engagement	• Stakeholder engagement strategies • Dealing with Politics and Resistance	23-3-2023	13.30-15.30
4	Use case elevator pitches	• Introduction to coaches • Pitch presentations	23-3-2023	15.30-17.00

[2] *depending Covid measures*

Module	Topic	Subtopics	Date	Time
		• Visual development for use case		

Weekly sessions

Module	Topic	Subtopics	Date	Time
5 zoom	*Use case coaching*	• *Coaching session* • *Work as team on use case* • *Plenary discussion and sharing learnings*	6-4-2023	*9.00-12.30*
6 zoom	Data Architecture & governance	• Data architecture • Data IT ecosystems • Data governance	13-4-2023	9.00-12.30
7 zoom	*Legal & accountability*	• Legal responsibilities & liabilities • Ownership rights • *Organizing for accountability*	20-4-2023	9.00-12.30
8	Data Fundamentals Workshop	• Wheel of data science • Data science methods • Practical hands-on workshop starting with example dataset and working on own challenge	11-5-2023	9.00-12.30
8	Lunch		11-5-2023	12.30-13.30
9	*Use case coaching*	Data Fundamentals Workshop (continued) *Coaching session* • *Work as team on use case* • *Mid Term presentations*	11-5-2023	13.30-17.00
10 zoom	Visualization & storytelling	• Visualization techniques • Dashboards and Digital Twins • Storytelling with data	25-5-2023	9.00-12.30
11	Data Ethics workshop	• Introduction to data ethics • Know about ethical issues in your everyday data projects. • Know how to constructively solve practical cases with the help of ethical theory. • Understand the societal relevance of data ethics. • Complying with EU GDPR	1-6-2023	9.00-12.30
11	Lunch		1-6-2023	12.30-13.30
12	*Use case coaching*	*Coaching session* • *Work as team on use case* • *Plenary discussion and sharing learnings*	1-6-2023	13.30-17.00
13 zoom	Artificial Intelligence and advanced topics	• Introduction to AI / AI fundamentals / demystifying AI • Examples of AI use cases & impact • Immersive Tech (AR/VR)	8-6-2023	9.00-12.30
14 zoom	*Use case coaching*	• *Coaching session* • *Work as team on use case* • *Plenary discussion and sharing learnings*	*15-6-2023*	*9.00-12.30*

Programme closure day

Module	Topic	Subtopics	Date	Time
17	Data driven transformation	• Building data & AI capabilities as organization • Organizational digital transformation strategies • Toward adoption, scaling & implementing the use cases	22-6-2023	9.30-12.30
17	Lunch	Lunch and group picture	22-6-2023	12.30-13.30
18	*Use case final pitches*	• Final team pitches, *including executives* • Judging & announcing winner	22-6-2023	13.30-17.00
18	*Closure*	• Handout certificates • Closing Dinner in City of Rotterdam	22-6-2023	18.00-21.00

7. Programme Fees

The fee for each participant for this nine-day programme is € 8,000 (excl. VAT). This includes course materials, access to the e-learning platform, team coaching during the programme, lunches, two dinners and a serious Lego set. Discounted rates apply to ECDA members and according to the number of participants per organisation. These are shown in the table below. For teams with more than five participants, the fee for each additional participant over five participants is € 7,000 (excl. VAT).

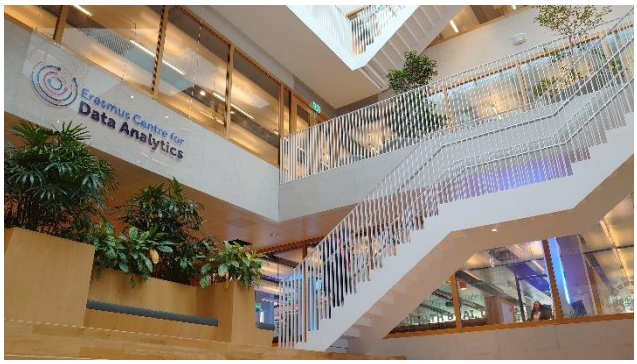
Number of participants	Cost per participant	Cost for partner organisation
1	€ 8,000	€ 8,000
2	€ 7,750	€ 15,500
3	€ 7,500	€ 22,500
4	€ 7,250	€ 29,000
5	€ 7,000	€ 35,000

One of the winning teams with the Erasmus Data Leadership Challenge Statue

8. Programme partnership & contributions

In the programme we combine research-based insights from leading professors with industry best practices from leading tech companies, start-ups, and inspiring examples of best practice applications on using data and AI. A selection of the key partnerships is shown below.

The beautiful and green campus of Erasmus University Rotterdam



The Erasmus Data Collaboratory