Erasmus Centre for Data Analytics
Hands-on preparation for a data-driven future

Leadership Challenge with Data Analytics
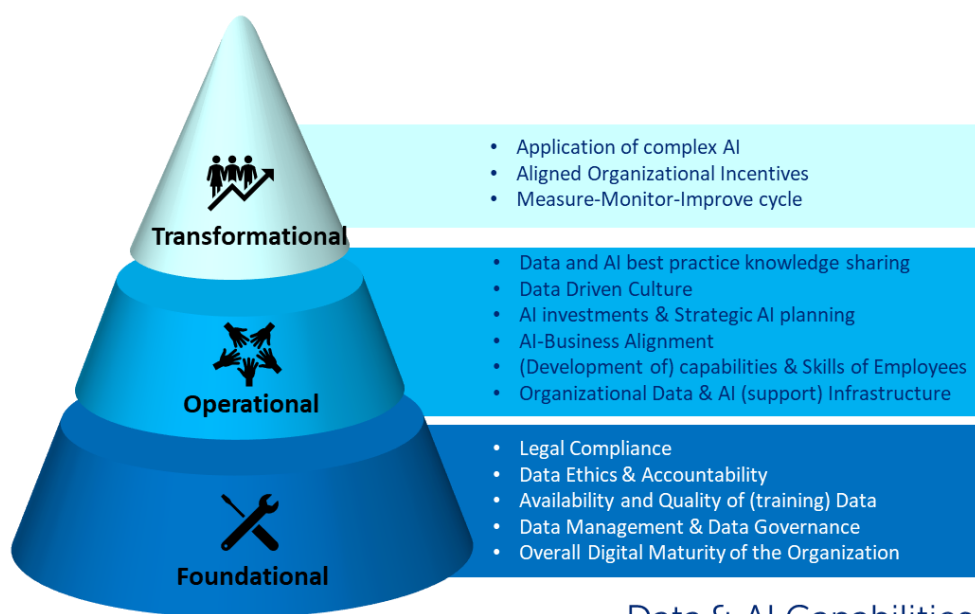
Mastering data, digitalization & AI

Edition Autumn 2022

1.   Introduction

The use of data and application of Artificial Intelligence (AI) will without any doubt change the way we will 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 Things-on-the-internet or better known as IoT). The fuelling component of those technologies is Big Data. This insight 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, redefines how organizations develop new products and services, changes how operations are organized and managed, and provides the basis for new business models and service offerings. It will demand a data driven focus of 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 presenting the insights.

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 of applying quantitative methods by those in business. Hereby mutual understanding is created, which supports the collaboration.

5. To broaden data scientists' and business members understanding of psychological factors, privacy, security, ethics, and accountability and to stimulate critical thinking.
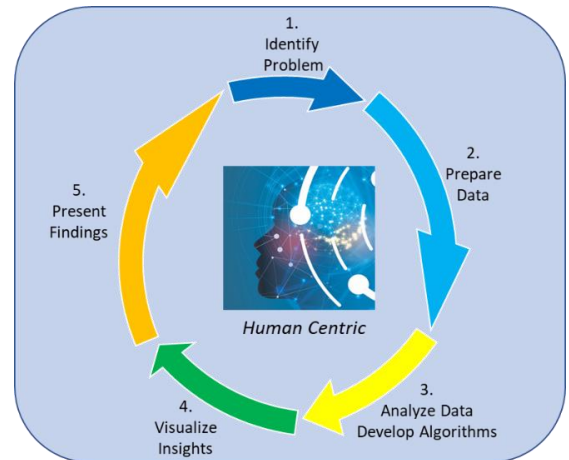

the data science & analytics lifecycle

3.   Unique elements of the programme

The programme offers six unique elements:

1. Holistic set-up 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 engages the participants in multidisciplinary teams with senior executives and supervisors to facilitate implementation of the business applications in the organization. This support team building.

5. It inspires participants through peer-learning and an outside-in perspective based on its cross-industry, cross-functional and international set-up.

6. It offers in-depth individual coaching of teams by both Academics and Business Consultants.
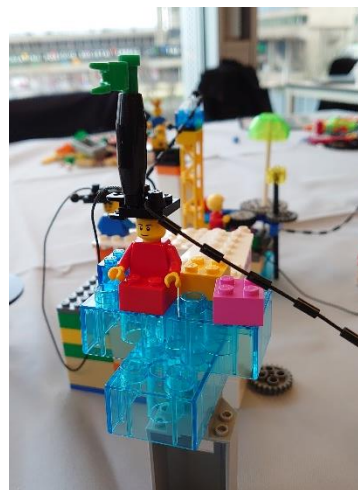
Introduction serious Lego workshop

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

A member from the executive board / sponsor joins the team during intake and 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.

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[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 rules about practice with 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. 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.
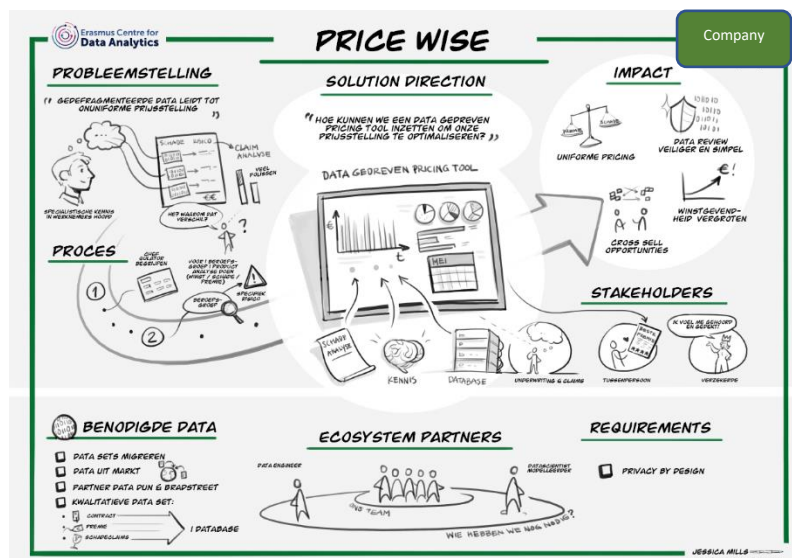
Example of use case visualization for a financial service company

Teamwork use case workshop

6.   Programme Design

Forthcoming edition starts in September 2022. This edition will be blended[2], with modules 1 till 4 and modules 17 and 18 delivered physically on the **campus of Erasmus University Rotterdam**, while the other modules 5 until 16 offered online via weekly interactive Zoom sessions**.** The programme is based on a combination of 14 modules with presentations, group activities and in class exercises and four use case coaching sessions. The programme features 3 lunches and a closing dinner.

Introduction kick-off (campus Rotterdam, in person)

Module	Topic	Subtopics	Date	Time
1	Introduction & kick-off	• Introduction programme & participants • Serious Lego workshop	28-9-2022	9.15-12.30
1	*Lunch*		28-9-2022	12.30-13.30
2	Data analytics strategy	• Data driven strategy • Data driven and platform business models • Leadership in data analytics	28-9-2022	13.30-17.00
3	*Use case workshop*	• Alumni team presentation • Workshop – action learning project use case development • Visual development for use case	29-9-2022	9.00-12.30
3	*Lunch*		29-9-2022	12.30-13.30
4	Stakeholder Engagement	• Engagement strategies • Understanding the role of narratives in the context of strategic change • Identifying and developing the building blocks of a change narrative • Preparing a board room pitch	29-9-2022	13.30-17.00

Weekly online and interactive Zoom sessions

Module	Topic	Subtopics	Date	Time
5	*Use case coaching*		*6-10-2022*	*9.00-11.3*
6	Data Fundamentals	• Problem definition • Data engineering & data science methods • Model building	13-10-2022	9.00-12.30
7	Data Architecture & governance	• Data architecture • Data IT ecosystems • Data governance	20-10-2022	9.00-12.30
8	Data Dilemma's & Data Ethics	• Data ethics and biases in analytics • Fair & accountable AI • Data Dilemma Game	3-11-2022	9.00-12.30
9	*Use case coaching*	*Coaching, pitch presentations & peer feedback*	10-11-2022	*9.00-11.30*
10	Artificial Intelligence	• Introduction to AI / AI fundamentals • Demystifying AI • Examples of AI use cases & impact	17-11-2022	9.00-12.30
11	Psychology of AI	• Human-AI collaboration & decision making	24-11-2022	9.00-12.30

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[2] depending Covid measures

Module	Topic	Subtopics	Date	Time
		• Problem driven decision making		
12	*Use case coaching*	*Coaching, pitch presentations & peer feedback*	*1-12-2022*	*9.00-11.30*
13	Legal aspects & Data privacy	• Legal responsibilities & liabilities of AI • Ownership rights • Data privacy	8-12-2022	9.00-12.30
14	Visualization & storytelling	• Visualization techniques • Storytelling with data • Dashboards and Digital Twins	15-12-2022	9.00-12.30
15	Data-entrepreneurship	• Building an entrepreneurial agile organization • Building your data ecosystem • Creating a learning organization around data & AI	12-1-2023	9.00-12.30
16	*Use case coaching*	*Coaching, pitch presentations & peer feedback*	*19-1-2023*	*9.00-11.30*

Programme closure (campus Rotterdam, in person)

Module	Topic	Subtopics	Date	Time
17	Data driven transformation	• Organizational transformation strategies • Data science in the organizational structure • Teams and skill sets • Adoption and use	26-1-2023	9.30-12.30
17	Lunch	Lunch and group picture	26-1-2023	12.30-13.30
18	*Use case final pitches*	• Final team pitches, *including executives* • Judging & announcing winner	26-1-2023	13.30-17.00
18	*Closure*	• Handout certificates • Closing Dinner in City of Rotterdam	26-1-2023	18.00-21.00

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

7.   Programme Fees

The fee for each participant for this nine-day programme is € 8,500 (excl. VAT). This includes course materials, access to the e-learning platform, individual coaching during the programme, lunches, two dinners and social activities. Discounted rates apply and according to the number of participants per

organisation, and 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	€ 8,500	€ 8,500
2	€ 8,000	€ 16,000
3	€ 7,500	€ 22,500
4	€ 7,250	€ 29,000
5	€ 7,000	€ 35,000

## 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 of using data and AI. A selection of the key partnerships is shown below.

The beautiful and green campus of Erasmus University Rotterdam
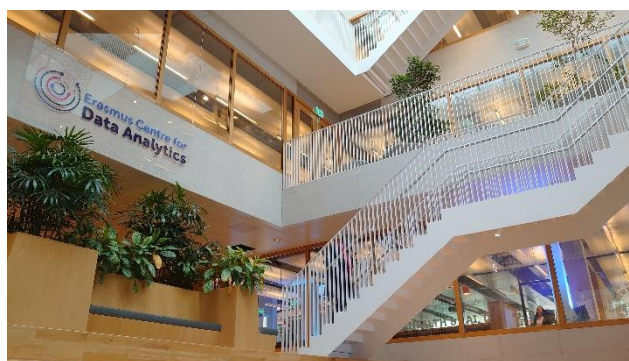
The Erasmus Data Collaboratory