Erasmus Centre for Data Analytics

SURF

Erasmus Centre for Data Analytics

Hands-on preparation for a data-driven future

Leadership Challenge with Data Analytics in Higher Education

Edition Spring 2022

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powered by

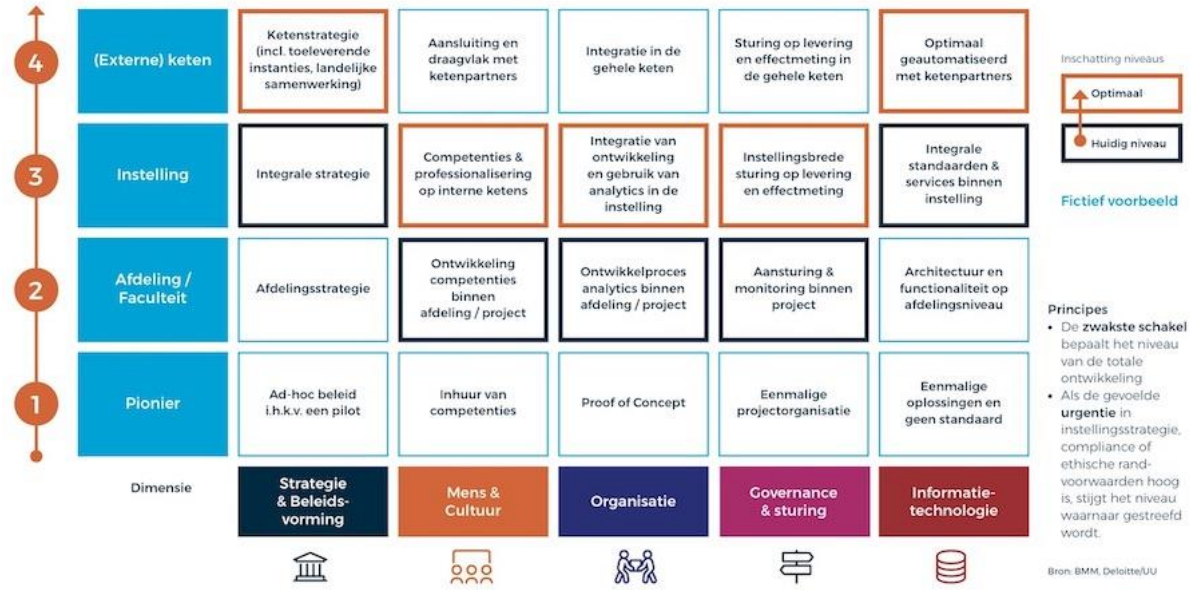
Acceleration plan
Educational innovation with ICT

1. Introduction

The use of data and application of analytics and artificial intelligence (AI) will without any doubt change the way we design and operate our Higher Education. As a matter of fact, today it is already changing our educational institutions. But what is needed to make analytics and AI valuable parts of the way we organize our education? Many experts believe that successful transformation of our Higher Education hinges on five pillars: strategy, hr and culture, organisation, governance and compliance, ICT.

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 opportunities, but also ethical, legal, privacy and technical issues concerning every part of the organization. It will influence the relationship with our students, redefines how new programs and services are developed, changes how operations are managed, and provides the basis for new 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 5 persons** - acquire a broad knowledge and diverse skills related to data analytics, which may lead to new insights that drive new value creation opportunities in the context of higher education. Such learning by doing manifests itself along two dimensions: across multiple levels (individual, group) and across multiple functions.



Foundations for becoming a data-driven organization in Higher Education

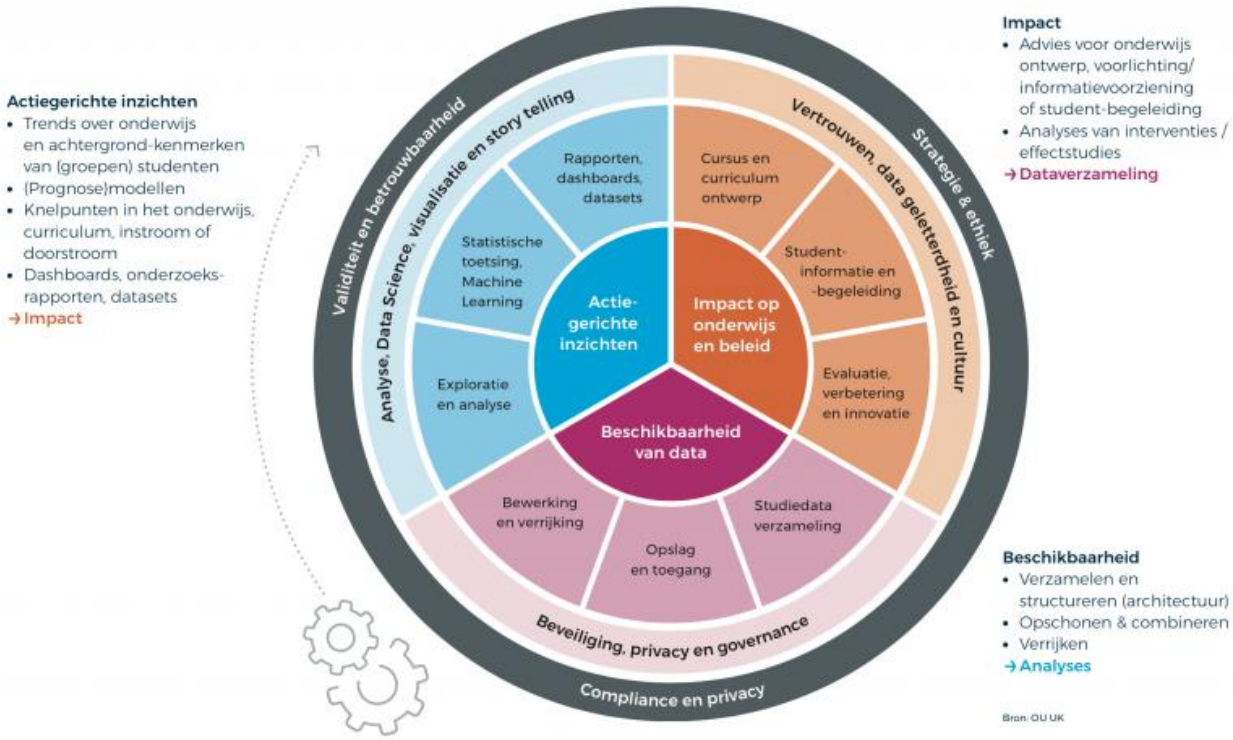
and maturity levels

2. Learning Objectives of the programme

The programme has six learning objectives:

1. To stimulate higher education to achieve value from data (educational, alumni and campus operational data) to improve the quality of the education, optimize operations and create personalized services and to innovate.

2. To understand the foundations for becoming a data-driven organization, as a basis for exploiting insights from analytics and AI.
3. To learn the **complete data analytics lifecycle**, from data exploration, data engineering, data analysis, data visualization up to presenting the insights.
4. To discover new ways to apply data technologies to design and implement innovative and value creating applications.
5. To create mutual understanding between users, policy makers, data scientists and IT units.
6. To broaden participants understanding of psychological factors, privacy, security, ethics and accountability and to stimulate critical thinking.



The wheel of data science in Higher Education

3. Unique elements of the programme

The programme is developed and offered by experts from Higher Education. It offers the following 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 higher education, 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 executives and supervisors to facilitate implementation of the applications in the organization. This support team building.
5. It inspires participants through peer-learning and an outside-in perspective.
6. It offers in-depth individual coaching of teams by both Academics and Business Consultants.

7. It supports the organization in exploring its data analytics maturity
8. It offers a separate track for executives

4. Participants

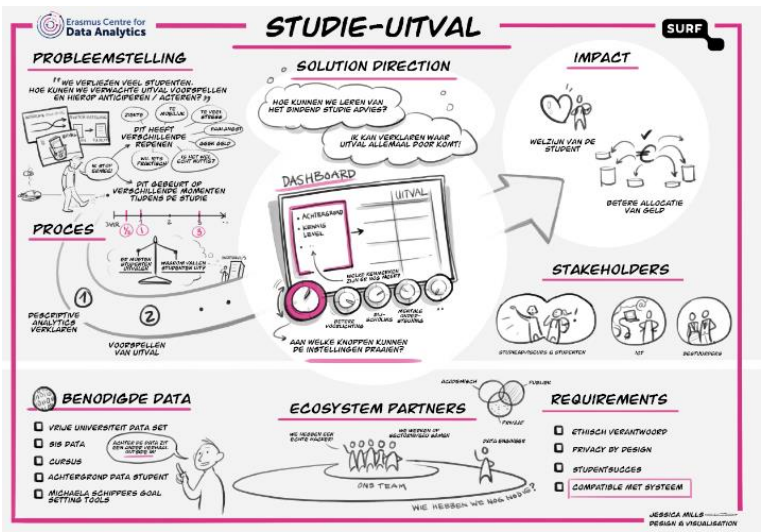
The programme is aimed at multi-disciplinary teams from or working in the context of (higher) educational institutes (MBO-HBO-Universities) composed of 3 to 5 persons, with representatives coming (ideally) from the following domains in the organization:

- Data user / business (for example education programme designers, managers, analysts, teacher, financial controllers, policy makers)
- Project manager / translator
- 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 or institute (internal sponsor) joins the team during intake, the executive track and in the final closure event of the programme. We encourage to involve other relevant stakeholders, such as students, as part of working on the action learning project.

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. As an example, in 2021 a team with representatives from Universities and Hogescholen developed a data driven approach towards analysing dropouts of students from a specific programme, towards creating a predictive model to anticipate expected dropouts. Starting points of the solution were to combine different types of open data and institute specific data sets. Privacy by design and combining human decision making with machine suggestions to properly weigh up ethical dilemmas were incorporated. This is visualized in the figure below



Example of use case visualization (source team Acceleration plan, Zone Secure and reliable use of education data, 2021)

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.

6. Programme Design

The pilot edition of this 8-day programme starts on April 5, 2022[1]. This edition will be blended[2], with modules 1 till 4 delivered in person in **Utrecht** and modules 15 and 16 in person on **campus of Erasmus University Rotterdam**, while the other modules 5 until 14 offered online via weekly interactive Zoom sessions. The programme is based on a combination of twelve modules with presentations, group activities and in class exercises, four use case coaching sessions and a track for executives. The programme features three lunches and two dinner sessions.

Kick-Off (Utrecht)

Module	Topic	Subtopics	Date & Time
1	Introduction & kick-off	• Welcome SURF: why and context: - importance of digital & data - student wellbeing and success • Introduction programme-, leadership challenges with study data • Lego workshop	5-4-2022 9.15-12.30
1	Lunch		12.30-13.30
2	Data analytics Strategy	• Digital and data driven strategy • Balancing data driven & human perspective • How to change the organization? • Data driven maturity of the organization	13.30-17.30
	Executive briefing	Provide executives the holistic programme overview	1600-1730
	Dinner buffet	*Welcome dinner including executives*	1730-2000
3	*Use case workshop*	• Presentation by alumnus • Workshop • Visual development for action learning project • Elevator pitches by teams	6-4-2022 9.00-12.30
3	*Lunch*		12.30-13.30
4	Stakeholder Engagement	• Stakeholder analyses • Understanding the role of narratives in the context of strategic change • Identifying and developing the building blocks of a change narrative • Communicating the narrative with impact	13.30-17.00

Weekly Online Zoom Sessions

Module	Topic	Subtopics	Date & Time
5	*Use case coaching*		*12-4-2022* *9.00-11.30*
6	Data Fundamentals	• Problem definition	19-4-2022 9.00-12.30

[1] *Depending on number of registrations*
[2] *Depending on Covid measures at that moment*

Module	Topic	Subtopics	Date & Time
		• Data engineering & data science methods • Model building	
7	Data Architecture & organization	• Data architecture & governance • Data governance – how to manage study data	10-5-2022 9.00-12.30
8	*Use case coaching*	*Coaching, pitch presentations & peer feedback*	*17-5-2022* *9.00-11.30*
9	Data Privacy & Ethics	• Data ethics and data biases • Data Dilemma Game	24-5-2022 9.00-12.30
10	Artificial Intelligence	• Introduction to AI • Demystifying AI • Examples of AI use cases, such as personalized learning	31-5-2022 9.00-12.30
11	*Use case coaching*	*Coaching, pitch presentations & peer feedback*	*7-6-2022* *9.00-11.30*
12	Visualization & presenting	• Visualization techniques & Dashboards • Examples of visualization in educational context	14-6-2022 9.00-12.30
13	Data entrepreneurship & innovation	Best practices of innovative use of data and analytics including: - Student analytics - Learning analytics & didactics - Dare to fail	21-6-2022 9.00-12.30
14	*Use case coaching*	*Coaching, pitch presentations & peer feedback*	*28-6-2022* *9.00-11.30*

Final pitch day and closure (Rotterdam)

Module	Topic	Subtopics	Date & Time
15	Data driven transformation	• Organizational transformation strategies • Creating the context for digital transformation • Data science in the organizational structure • Teams and skill sets • Adoption and use	5-7-2022 9.30-12.30
16	Lunch	Lunch and group picture	12.30-13.30
16	*Use case final pitches*	• Final team pitches, *including executives* • Feedback student panel • Judging & announcing winner	13.30-17.00
16	*Closure*	• Handout certificates • Closing Dinner in City of Rotterdam	18.00-21.00

7. Programme Fees

The programme fee for this programme is € 4.750 euro per person (free of VAT). This fee includes access to the online learning environment and materials, three lunches, 2 dinner sessions, a serious Lego set, and coaching as part of a team-based action learning project. Access to the executive track by an executive from the organization is part of the enrolment of teams.

For the first pilot edition of the programme in 2022 a 50% discount is offered on these fees, based on a matching contribution by Zone Acceleration plan, Zone Secure and reliable use of education data.

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8. Programme partnership & contributions

In the programme we combine research- and practice-based insights from leading Professors and Lecturers from several Dutch research universities and universities of applied sciences. We combine these with best practices from leading tech companies, start-ups, and learnings from the use of data and AI in the public sector. A selection of the key partnerships and guest speakers is shown below.

Registration link

https://www.surf.nl/agenda/leergang-data-science-leadership-challenge-analytics-en-ai-in-het-hoger-onderwijs