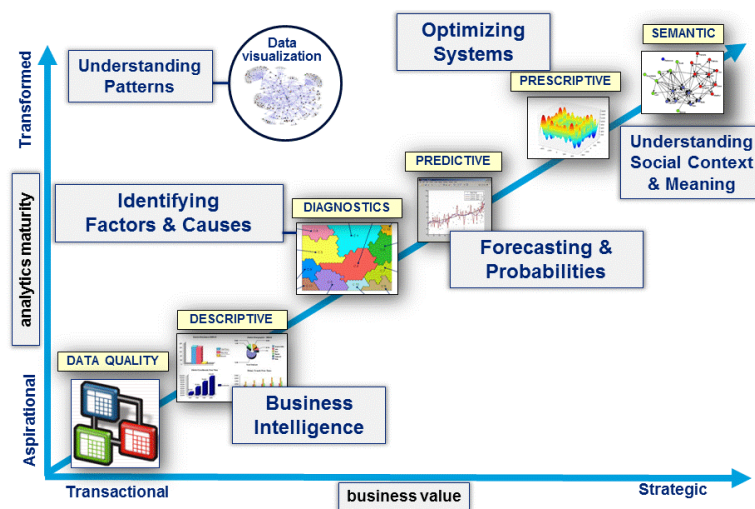




**BACKGROUND**

Organizations increasingly use big data to reinvent their business. Big data brings disruption to industries and organizations and can revolutionize the way we do business. Big data impacts customer relationships, redefines how firms develop new products and services, changes how operations are organized and managed, improves demand and supply networks, and provides the basis for new business models. New technologies for data collection, analysis and prediction create huge opportunities, but also ethical, legal, technical and business risks. This leadership programme aims at supporting organizations in their transformation towards a data-driven company by engaging professionals in data science (technical/methodology oriented) with professionals engaged in business analytics (business model and application oriented) and linking them to business best practices with senior executive involvement.



*The business value of big data in relation to analytics maturity*

source: <http://sctr7.com/2014/07/09/twelve-emerging-trends-in-data-analytics-part-1-of-4/>

The leadership programme is organized by the **Erasmus Centre for Data Science and Business Analytics**, a joint initiative of various research groups within Erasmus School of Economics (ESE) and Rotterdam School of Management, Erasmus University (RSM). The centre combines the available expertise from different scientific disciplines including business information management, marketing, econometrics, innovation management, operations research, and business strategy. Application domains of the centre include marketing analytics, e-commerce, business (network) operations, supply chain management, transport & mobility, and HR & learning analytics. Moreover, the centre bundles knowledge on methodologies, management and legal aspects.

## ABOUT THE PROGRAMME

Objectives of the programme are

- (1) To provide high potential professionals engaged in data science and/or business analytics with academically sound, new ways to apply “big data technologies and methods” to design and implement innovative and winning business applications;
- (2) To improve the business skills of (typically technically-focused) data scientists by giving them a good understanding into business thinking, business case creation, and looking at problems from a business angle;
- (3) To improve the technical skill set of business analysts by giving them a profound understanding of data science methodologies and techniques;
- (4) To provide a cross industry learning platform for these professionals to learn from experiences in other, relevant industries;
- (5) To broaden data scientists’ and business analysts’ understanding about privacy and security in order to provide solid data-driven business applications;
- (6) To engage senior executives of the delegates as a basis for actual implementation of the developed business applications.

## WHO IS IT FOR?

The programme brings together delegates from different companies and industries:

- 1) Professionals engaged in data science (technical/methodology oriented)
- 2) Professionals engaged in business analytics (business model and application oriented)
- 3) Senior executives of the delegates (as sponsor of big data use cases)

The programme is relevant for companies in the following industries: Finance & Insurance, Consulting, Transport, Consumer Products and Services, Media, Information and Communication Technology, Energy, and Retailers. Also delegates of non-profit organizations and governments such as professionals working on smart city concepts are invited to join this programme.

## PROGRAMME DESIGN

The programme consists of three blocks.

### **Block 1: Introduction / preparation session**

*Block 1* consist of 1.5 day preparation sessions that focus on terminology, leadership challenges, and readiness of companies including their enterprise architecture and digitized platform, case studies from other companies, short presentations of participating companies. Every participating company will bring in one or several case studies, which will be the red wire for team participants to work on during the programme and apply the learned concepts to the own context.

### **Block 2: 5-day core programme**

*Block 2* (5 day programme) updates delegates on the data driven company, discusses technologies for analysis, prediction and visualization; business case considerations, change management and implementation. The last day of block 2 contains senior executive engagement, the executives receive a state of the art update and a pitch of the results of the group work for the case studies will be presented back to the company executives.

### **Block 3: Get-back session**

*Block 3* consists of a one-day session to review the latest state-of-the-art developments and evaluate how the company has progressed with their own big data applications.

The programme is set up in *blended learning format*. During and after the course there will be access to a blended learning system with content from Erasmus University Rotterdam and associate universities including self-tests and relevant short courses and tutorials to ensure a common, basic and individual capability set.

## PROGRAMME MODULES

The programme consists of various modules, in principle each module is taught by faculty members of the Rotterdam School of Management or the Erasmus School of Economics and contains guest speakers from industry.

### Block 1: Introduction / Preparation Session

#### Day 1: October 29, 2015

13:30 – 17:00

#### Module 1: Introduction to the Leadership Challenges of Big Data

- Welcome participants
- Leadership in the Digital Age
- Challenges for Data Driven Companies
- Best Business Practices: Success Factors, Impact on Business, Industry and Society
- Structure and setup of programme, introduction to company cases and assignments, learning format

#### Evening

Welcome dinner

#### Day 2: October 30, 2015

9:00 – 12:30

#### Module 2: Enterprise Architecture for Data Driven Companies

- Agile Companies and their Enterprise Architecture and Digitized Platform
- Closing the Loop: Sensing – Storing – Analysing – Responding – Learning
- Agility Scorecard
- Mind the Gap: Business Analysts and Data Scientists

13:30 – 17:00

#### Module 3: Maturity of Data Driven Companies

- Big Data Savvy Companies: Maturity and Capabilities
- Successful Big Data Projects: No Time to Waste
- New Ways of Working with Big Data
- Preparation Company assignment / big data applications. Company applications of big data will be focused on Business to Consumer i.e. the end customer, or business to business to consumer [benefit for end user, monetization on B to B part]. Business to business can be included in case of linkages to the back office/warehouse. Senior executives will be linked as mentors
- Presenting preliminary ideas about applications of big data

## Block 2: Core Programme

<b>Day 3: November 23, 2015</b>
9:00 – 12:30 <b>Module 4: Current Technologies for Data Analysis</b> <ul style="list-style-type: none"><li>• Overview of key technologies/methods</li><li>• In depth presentation of advanced technologies</li></ul>
13:30 – 17:00 <b>Module 5: Exploring and Visualizing Big Data</b> <ul style="list-style-type: none"><li>• How to summarize and explore big data</li><li>• Data visualization technologies</li></ul>
<b>Day 4: November 24, 2015</b>
9:00 – 12:30 <b>Module 6: Advanced Technologies for Data Analysis</b> <ul style="list-style-type: none"><li>• In depth presentation of some advanced cutting-edge technologies by representatives (chief data scientists) of selected participating companies and faculty members.</li><li>• Working on company assignment</li></ul>
13:30 – 17:00 <b>Module 7: Presenting and Selling Big Data Results</b> <ul style="list-style-type: none"><li>• How to read data science results</li><li>• How to present results to business</li><li>• Talking CEO's language</li><li>• Working on company assignment</li></ul>
<b>Day 5: November 25, 2015</b>
9:00 – 12:30 <b>Module 8: Company assignments: discussion using data analysis and visualisation tools</b> <ul style="list-style-type: none"><li>• Presenting and discussing company assignments / initial ideas about business case by participants into the programme</li></ul>
13:30 – 17:00 <b>Module 9: Creating the Business Case for Big Data</b> <ul style="list-style-type: none"><li>• Business Models and the Value of Information</li><li>• Stakeholder Analysis</li><li>• Investment Portfolio and Review</li></ul> Working on company assignment - business case template

<b>Day 6: November 26, 2015</b>
<p>9:00 – 12:30</p> <p><b>Module 10: Ethical, Legal and Privacy Challenges</b></p> <ul style="list-style-type: none"> <li>• Ethical challenges when using big data</li> <li>• Privacy and security considerations and legislation</li> </ul>
<p>13:30 – 17:00</p> <p><b>Module 11: Implementation – Changing your company into a data driven company</b></p> <ul style="list-style-type: none"> <li>• Culture and change management</li> <li>• Implementation approaches</li> </ul> <p>Management Game: Data Driven Transformation (contribution PA Consulting Group)</p>

<b>Day 7: November 27, 2015</b>
<p>9:00 – 12:30</p> <p><b>Module 12: Recap Leadership Challenge with Big Data State of the Art</b></p> <ul style="list-style-type: none"> <li>• “state-of-the-art” briefing / recap of programme for executives and sponsors</li> <li>• Lessons learned from practice</li> </ul>
<p>13:30 – 17:00</p> <p><b>Module 13: Presentations and Final Discussions</b></p> <ul style="list-style-type: none"> <li>• Participants into the programme present the results of the group work for the company specific applications of big data as a pitch to company executives.</li> <li>• Group discussion</li> </ul> <p><b>Evening</b> Closing dinner</p>

### Concluding / Get Back Session

<b>Day 8: January 29, 2016</b>
<p>9:00 – 12:30</p> <p><b>Module 14: Review State of the Art</b></p> <ul style="list-style-type: none"> <li>• Review the latest state-of-the-art developments</li> <li>• Evaluate participants’ progress with their big data applications.</li> </ul>
<p>13:30 – 17:00</p> <p><b>Module 15: Reflection and Final Discussions</b></p> <ul style="list-style-type: none"> <li>• Reflection on company specific applications of big data</li> <li>• Presentation of prototypes/results of company specific big data applications and in class discussion</li> </ul> <p>Presentations can include initial prototypes, results of analytics studies, business case calculations, videos and they should address the topics presented during the course work (e.g. business objectives, business case (or at least benefit case) calculations, privacy, technology choice)</p>

## CORE FACULTY AND ORGANIZERS



**Dr Jan van Dalen** is Associate Professor of Statistics at the Department of Technology and Operations Management, Rotterdam School of Management, Erasmus University. He has a background in econometrics and obtained his PhD in quantitative modelling of wholesaling. His main research interests are in quantitative analysis of information, logistics, trade and organizational processes. He has been involved in various research programmes, such as monitoring trade and traffic flows with CBS, trade lane risk assessment in Cassandra, cross-chain collaboration in 4C4More/Dinalog. He is the co-founder of the recently established Erasmus Centre for Data Science and Business Analytics and co-director of E-Urban, and leads the Knowledge Lab Urban Big data in collaboration with the City of Rotterdam. Next to research, he has extensive teaching experience in applied statistics, forecasting and big data, in the bachelor, master and executive teaching programmes.



**Professor Dennis Fok** is an endowed professor of applied econometrics at the Econometric Institute, Erasmus School of Economics (ESE). He specializes in developing models to describe, understand, and predict decisions made by consumers. In his research he often collaborates with industry. Among his technical interests are modelling unobserved heterogeneity, marketing econometrics, and Bayesian statistics. His research has been published widely in peer-reviewed academic journals. He is also Associate Director of the Erasmus Research Institute of Management (ERIM). Over the past years he has supervised many Econometrics Master students with business related (big) data questions.



**Professor Eric van Heck** is a professor of information management and markets at the Department of Technology & Operations Management, Rotterdam School of Management, Erasmus University (RSM). His research concentrates on the role and impact of advanced information systems and technologies helping to solve complex societal and business challenges. At the moment he is working on sustainable ways of working, multi-agent systems for smart energy grids, mobile banking platform ecosystems for financial inclusion, and sustainable maritime logistical systems. Research is carried out with innovative companies and universities in Brazil, China, Europe, Indonesia, and USA.



**Professor Wolfgang Ketter** is a Professor of Next Generation Information Systems at the Department of Technology and Operations Management at Rotterdam School of Management, Erasmus University. Professor Ketter is the founder and director of the Learning Agents Research Group at Erasmus. The goal of this group is to research, develop and apply autonomous and mixed initiative intelligent agent systems to support human decision making in the area of business networks, electronic markets, energy grids and supply chain management. He is also the founder and director of the Erasmus Centre for Future Energy Business which enables robust, intelligent, efficient and sustainable energy networks of the future. Professor Ketter leads Power TAC, a new TAC competition on energy retail markets. Since 2011 he has served as the chair of the IEEE Task Force on Energy Markets.





**Dr Marcel van Oosterhout** is senior project manager at the department of Technology and Operations Management at Rotterdam School of Management, Erasmus University. He is responsible for business development and project management and a member of the daily board. Furthermore, Marcel is business director for the Erasmus Centre for Future Energy Business. Marcel received his PhD from the Rotterdam School of Management in 2010 on the topic "Business Agility and Information Technology in Service Organizations". The dissertation analyses how (service) organizations can become more agile (i.e. responsive to uncertain events) and how IT infrastructure, Information Systems and big data can support organizational agility. A spin-off company called *Agility Factor* is currently under development. His key research areas include IT applications in global supply chains and freight transport; future energy business; organizational agility (sense-respond-learn) and the role of IT; new ways of working.



**Professor Peter Vervest** is a professor of business telecommunications at the Department of Technology and Operations Management, Rotterdam School of Management, Erasmus University (RSM). His key research areas include decision science; network technologies and applications; business networks; competitive strategy; and change management.

## COLLABORATIVE PARTNERSHIPS



PA Consulting Group



## PRACTICAL INFORMATION

### Dates:

Block 1: Introduction / preparation session: October 29+30, 2015  
Block 2: Core Programme: 1 week from November 23 till November 27, 2015  
Block 3: Get back session: January 29, 2016

*A second series will be planned, depending on interest, starting in summer 2016*

### Length:

In total 8 days

### Fees:

The fee for this programme depends on the number of participants from every partner organization (i.e. participating company or institute) that joins. Fee for individual participants for the 8 day programme is € 6.450,-. This includes course materials, access to e-learning platform, lunches, 2 dinners and social activities. Discount rates apply, depending on the number of participants per partner organization. The table below shows the cost for signing up as a team, depending on the number of participants following the programme. The costs for teams with more than 5 participants equals team cost of 5 participants plus € 5.500,- per additional participant.

<u>Number of participants</u>	<u>Cost per participant</u>	<u>Cost for partner organization</u>
1	€ 6.450,00	€ 6.450,00
2	€ 6.250,00	€ 12.500,00
3	€ 5.950,00	€ 17.850,00
4	€ 5.750,00	€ 23.000,00
5	€ 5.500,00	€ 27.500,00

**Exclusivity:**

In order to guarantee an open collaborative atmosphere of the programme where ideas can be shared and discussed freely among the participants, the programme is open to participating teams coming from different industries. Acceptance into the programme is based on the date of registry (confirmation) by the partner and the size of the team registering. In case more companies from one industry (i.e. competitors) want to participate, they can reserve a space in a next series, in case their industry is already represented. Consultancy firms have no exclusivity rights into the programme – the programme is open for different consultancy firms to participate.

**Location:**

Rotterdam School of Management, Erasmus University

**Language:**

English

**Certificate:**

Erasmus Centre for Data Science and Business Analytics

**Website:**

<http://www.irim.eur.nl/dsba>

**Contact:**

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