

Data knowledge, education and research

# A year in review

2019

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# Introduction

Our aim in establishing our specialist research centre at Rotterdam School of Management, Erasmus University (RSM) was to meet a developing need in business and society. Organisations and firms are increasingly using – and relying on – data; it has become essential information, and data analytics is a necessary skill. Data analytics is the engine that enables organisations and firms to be data-driven, and is at the core of artificial intelligence (AI).

**A**fter a year of planning, and working with passionate people, we launched the Erasmus Centre for Data Analytics (ECDA) in 2019 with the intention of providing research-based knowledge, education and research about data science, data engineering, and data visualisation. We have seen encouraging progress over the past few months.

In the first part of the year we confirmed our founding partners and established the foundations for our network, and since our public launch at the sold-out Erasmus Data Analytics Summit in July, we have exceeded our ambitions in terms of the number of businesses that have engaged with us and sought to become business partners.

Data analytics is an interdisciplinary topic. Over the year we engaged 12 academic directors to add to our expertise; they come from 5 of the 10 faculties at Erasmus University Rotterdam. From the outset, our purpose was to become a centre for cross-disciplinary knowledge to explore data analytics and AI, enhance data knowledge, and find business and societal uses for data analytics and AI to benefit from the digital transformation.

We have engaged with several organisations from government and industry that support our purpose, and who confirmed the need for hands-on research and education. They share our vision and will be partners in helping us accomplish our mission. They understand that collaboration between academia, government and industry, sharing resources, knowledge and passion to create a societal impact is what we need to sustain the future. And they have endorsed the idea that passion provides purpose, but data drives decisions.

We hope you enjoy this summary of our first official year of activities.



**Gerrit Schipper**  
Executive director  
Erasmus Centre for Data Analytics

Rotterdam School of Management,  
Erasmus University





# About the Erasmus Centre for Data Analytics

Our purpose is to explore data analytics, enhance data knowledge, and find business and societal uses for data analytics and AI to benefit from the digital transformation.

From the perspective of business and society, practitioners can benefit from the newest academic insights and analysis of their business problems that our research reveals, and from the questions raised by our trained researchers. Creating and cultivating collaborations with practitioners in organisations and businesses in every sector has been our primary aim since we formed this academic centre for cross-disciplinary insight in November 2018. From an academic viewpoint, we generate and collect high-quality data for research and academic papers. We seek projects that contribute to the quality of education and research in data analytics.

And as a part of one of the top academic institutions in Europe, we educate and share our knowledge via exchanges between corporations and students, and involve students in industry's unfolding transformation and digitalisation. We also develop short education programmes about the added value of using data analytics for executives already working in business and society.

The Erasmus Centre for Data Analytics holds strategic importance for Erasmus University Rotterdam in terms of enabling it to stay well-connected to the development of technology in general, and data analytics and artificial intelligence in particular. Increasing internationalisation of scientific research and education combined with associated mobility of students and staff – and competition in attracting and retaining them – makes it imperative that we create the proper

conditions and offer the best available facilities. And while Erasmus University Rotterdam already had expertise in data analytics and artificial intelligence before ECDA was formed, this expertise was scattered; know-how was seldom shared between faculties, schools or research centres and AI-related initiatives were not generally distributed.

To address this, we have extended our interdisciplinary network within the university, and into the business community and into society. We have trained people from all kinds of organisations to find and use the correct data by giving them context and understanding. We have developed and presented executive education programmes which make use of a 'try-and-apply' attitude, created bespoke executive briefings for company boards, and we have spoken at international conferences and seminars. These efforts will continue throughout 2020 and into the future.

 [rsm.nl/ecda](https://www.rsm.nl/ecda)

# Expert practices

In the next few years, a large number of companies will look for employees that have skills in technology; these knowledge workers will have multidisciplinary training and can solve complex national and international issues in which data and analytics can make an important contribution. We predict that understanding and applying big data analytics is going to be the top technology.

As an education provider and a research institution, we have expertise to share across a wide range of domains in business, organisations, and society. Our expertise comes from world-class academics at Erasmus University Rotterdam. We currently have appointed academic directors from 5 of the 10 faculties here at the university and expect more to be appointed in the near future.

- 1 Digital business in the digital business lab
- 2 Marketing analytics in the marketing analytics lab
- 3 Smart cities and smart energy
- 4 Financial innovation and technologies in the fintech lab
- 5 Audit accounting and control analytics lab
- 6 Bioinformatics
- 7 Law and digital compliance
- 8 AI and social inclusion
- 9 Supply chain analytics
- 10 Psychology of AI
- 11 User experience research and global tech design

## Partnerships

By sharing their challenges with datasets in business or operations, firms and organisations that partner with ECDA can expect a range of benefits in return. In formal partnerships with a fixed term – usually about three years – we can act as a hub that propels both ends of the data analytics ecosystem forward: the data generators, and the data consumers.

Government, industry and academic organisations all have different principles, models and aims. This is why ECDA has developed a collaboration model, available in a range of bundled packages, to facilitate collaboration between the three without compromising business' activities, the value of education for students, or the scientific independence of our research.

- **Being the subject of research**  
Public and private organisations that generate data and want to optimise its use so they become data-driven organisations, and are interested in collaborating with the university.

- **Enabling our research and education**  
For testing, education and research, we welcome partners from technology companies that create data ecosystems. By making their technology, software and tools available to ECDA, they can be used in education and research.

In 2019, we also created informal partnerships and working relationships with a host of organisations in smaller projects. These projects have helped the organisations involved to progress, added to the Centre's experience and expertise, and have contributed to the field of data analytics.

ECDA's multidisciplinary nature sometimes works in a very interesting way to generate synergies as relationships deepen. A good example is the application of morphing algorithms, developed for personalising websites in the marketing analytics lab. These algorithms can be applied to personalised health treatments, a great example of marketing insights being transferred to bioinformatics.

Our specialisms include:



Digital business  
in the digital  
business lab



Financial innovation  
and technologies in  
the fintech lab



Bioinformatics

Marketing analytics  
in the marketing  
analytics lab



Smart cities and  
smart energy



Audit accounting  
and control  
analytics lab



Law and digital  
compliance





## Partner benefits

Our partner organisations benefit from ECDA's knowledge, analytical skills and hands-on support. They get:

- » methodologies to analyse and visualise data
- » training and hands-on skills development for executives
- » expert knowledge on data governance for public and private partners to benefit from the digital transformation
- » access to academic community, engaged students at bachelor and master level, and RSM's international network of more than 40,000 alumni
- » ECDA's data visualisation lab and AI test hub; these are hosted with founding partners and can be used to identify business opportunities and realise societal impact.

For more information about partnering with us:



## Society benefits

Activities at the Erasmus Centre for Data Analytics in 2019 have increased our understanding of:

- » classic issues in management and business economics using data analytics and AI
- » how data analytics and AI disrupt traditional industries
- » how data analytics and AI affect society at an aggregated scale
- » how data analytics and AI are used in the context of ethics, accountability, privacy and security.

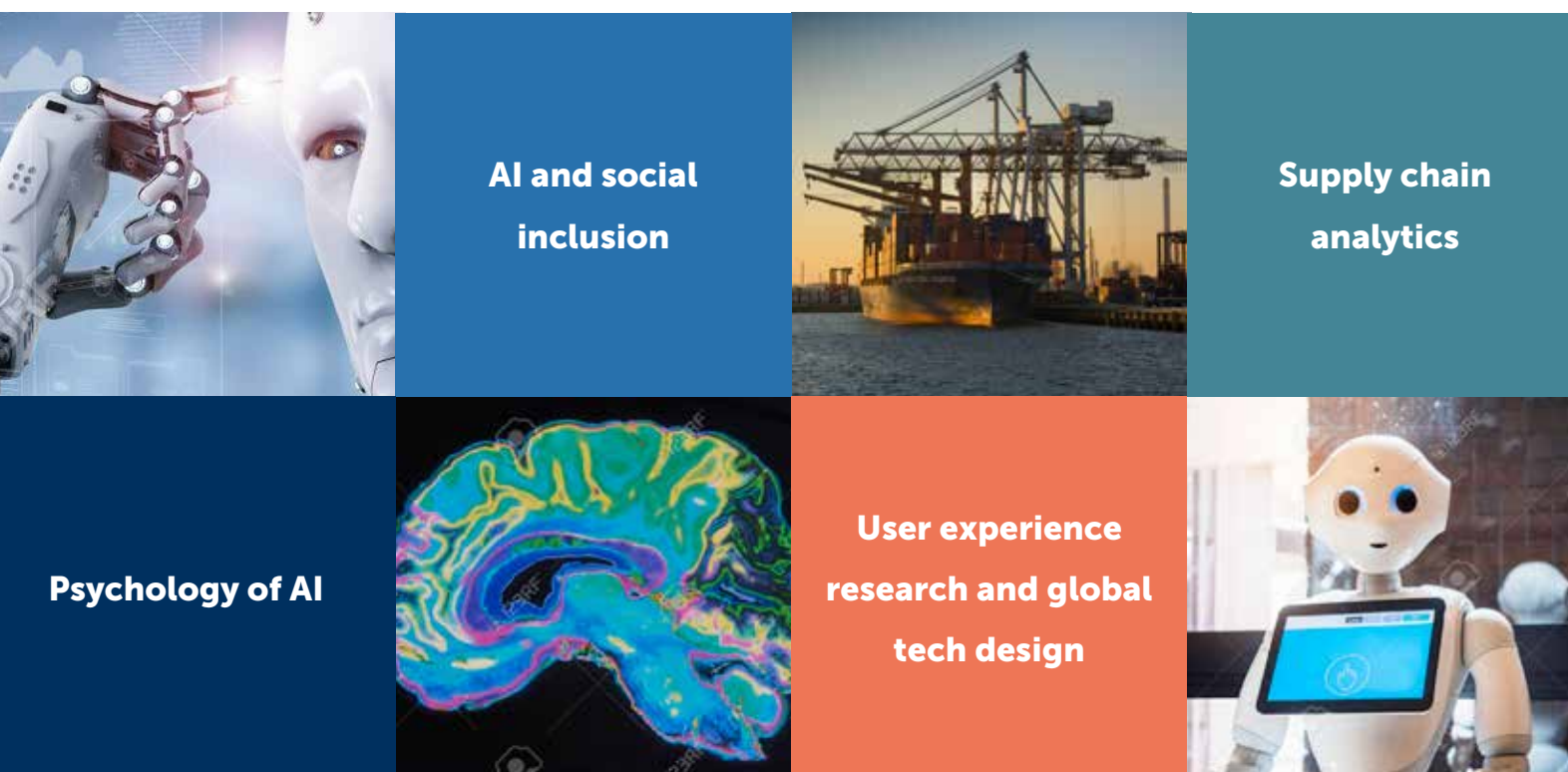
Increased understanding has a positive impact on societal issues; we pay particular attention to the United Nations' 17 Sustainable Development Goals (SDGs) – which form a framework for RSM's mission, 'to be a force for positive change in the world'.

There's another social contribution that we're particularly proud of; that is responsible and auditable AI. In April 2019, the European Commission presented a set of Ethics Guidelines for Trustworthy Artificial Intelligence, according to which AI should be:

- » lawful, respecting all applicable laws and regulations
- » ethical, respecting ethical principles and values
- » robust from a technical perspective while considering its social environment.

What is still missing however, is an implementation framework for responsible and auditable AI that follows these guidelines, and that offers guidance for organisations are interested in developing AI.

ECDA's academic director Dr Iuliana Sandu and Dr Otto Koppius prepared initial plans for researching a framework for responsible and auditable AI. These were presented in The Hague in October at the *Congres Data en Beleid* (Data and Policy Conference), about the transparency and potential of algorithms and data when used systematically to trace and help combat social issues, by ECDA's Dr Otto Koppius. The plans for 2020 initially involve the 'big four' Dutch accountancy firms. Later on, our research will include corporates and organisations that will need to use auditable AI, and would welcome such a framework.





# Accomplishments 2019

We increased our visibility and grew our network within the academic community and in the business community by taking part in events throughout the year. Highlights included:

## January

### Smart City Conference, Open and Agile Smart Cities (OASC, a non-profit, Connected Smart Cities Conference, Brussels

ECDA's Dr Marcel van Oosterhout presented the results of investments in smart cities learned from the RUGGEDISED project (part of the EU Horizon 2020 research and innovation programme) and its European Innovation Partnership (EIP) on Smart Cities and Communities (SCC). He debated with smart cities thought-leader Graham Colclough about securing and funding urban digital infrastructure, and on analysis in urban data platforms.

### RSM Executive Education: Leadership Challenges with Data Analytics

Several of our academic directors, plus guest lecturers from the universities of Leiden and Delft as well as expert practitioners, taught a leadership programme to representatives from organisations including Rotterdam city council, the Dutch national statistics organisation CBS, the Rotterdam public transport network RET, brewer Heineken, digital parking firm Parkius, and the low-code software platform Mendix.

## February

### Health Business Week seminar, Erasmus University Rotterdam

This seminar was a joint initiative of the student-led Erasmus Tech Community, which executed it, and featured speakers from the industry. ECDA contributed to the presentations that explored how the healthcare industry uses new technology.

## March

### European Smart Projects Summit, San Sebastian

Dr Marcel van Oosterhout joined representatives of public authorities from San Sebastian and the European Commission to share knowledge about smart cities at this two-day event. Topics included funding the scalability of smart solutions and the transformation of districts using sustainable and smart buildings. Assistant executive director Dr Van Oosterhout presented the status of the RUGGEDISED project.

## April

### Executive briefing, mayor and aldermen of Rotterdam

ECDA was invited to make a presentation about the opportunities and challenges of data and algorithms for Rotterdam to city officers including the city's mayor, Ahmed Aboutaleb.

### Research grant for dynamic pricing research

The Erasmus Trustfonds foundation awarded a research grant of € 292,000 from the ALLSAFE fund to research using consumer online click stream data for dynamic pricing strategies. The project is led by ECDA academic director Prof. Ting Li.

### Supply chain management lunch seminar

The first of a series of seminars introducing ECDA to special interest groups and departments at RSM.

### Living Energy Conference, World Port Center Rotterdam

The second in a series of living energy conferences from RSM and the Institute for Energy Economics (EWI) at the University of Cologne. ECDA's contribution was a workshop on data analytics and block chain, in collaboration with RSM's Erasmus Centre for Future Energy Business, the Port of Rotterdam and the University of Cologne.



### Code of Conduct seminar, Venture Café Rotterdam

ECDA explored data ethics and accountability, data transparency and trust in the context of ports and supply chains at this seminar, which was a collaboration between ECDA, software developers WolfPack, and the Venture Café community of innovators. Speakers came from port of Rotterdam and Blocklab.

## May

### Erasmus Tech Summit, Erasmus University Rotterdam

An initiative of the Erasmus Tech Community and ECDA. Executive director Gerrit Schipper moderated the panel discussion on the future of education.

### Erasmus Liquidity Conference, Erasmus University Rotterdam

An annual academic conference to promote research into market liquidity, hosted by the Econometric Institute at Erasmus University Rotterdam and ECDA at RSM. The fintech session was chaired by ECDA academic director Dr Dion Bongaerts.

### Diploma Programme in Digital Transformation, RSM

ECDA provides the academic underpinning for this executive programme about digital strategy. Teacher is Dr Rodrigo Belo whose research focuses on the effects of information systems on organisations, and the impacts of social network structures and peer influence on consumer behaviour.

### Open Banking Day, Erasmus University Rotterdam

An initiative from the university's Turing Students organisation and ECDA to explore the issue of consumer data collected by banks and shared with third-party developers, from the viewpoints of banks, developers and consumers. Moderated by ECDA academic director Dr Dion Bongaerts.

### Honours programme MSc Business Information Management, RSM

ECDA delivered the challenging extracurricular course for RSM's honours master students studying for the MSc in Business Information Management, in collaboration with online retailer Coolblue. Student teams were invited to analyse Coolblue data and recommend a location for its next physical store in the Netherlands.





## June

### Diploma Programme in Digital Transformation, RSM

ECDA provides the academic underpinning for this executive programme about digital strategy. Teacher is ECDA academic director Prof. Ting Li, an expert in digital strategy, ecommerce, social media analytics, mobile marketing, business analytics, online advertising, and pricing and revenue management.

### Urbis Smart City Fair, Brno, Czech Republic

An assembly meeting for the smart city RUGGEDISED project, with a keynote presentation by assistant executive director Dr Marcel van Oosterhout.

### Executive workshop for the board of Heineken Nederland, RSM

A bespoke executive workshop designed for the board of Heineken Nederland and moderated by ECDA executive director Gerrit Schipper to follow up their leadership challenge in January. It included coaching on data analytics and AI to accommodate the discussion that would follow a presentation, and to help with making conclusions and deciding on actions.

### Research collaboration with Parkius BV

An agreement for sharing data with digital parking company Parkius BV; the intention is to explore the potential for analytical insights from a large data set from parked vehicles, and the research is led by ECDA academic director Prof. Ting Li.

## July

### Erasmus Data Analytics Summit and Data Summer School, RSM

This summer school for data and analytics incorporated the first Erasmus Data Analytics Summit, organised in co-operation with the Erasmus Tech Community. The summer school was attended by 50 students selected from Erasmus University Rotterdam, and comprised a hackathon challenge provided by online retailer Coolblue. Keynote speaker at the Summit was Frans van Houten, CEO of Royal Philips Electronics. It marked the official launch of ECDA, and was attended by more than 250 people; business managers, entrepreneurs; MBA and master students; people working at the intersection of data science and social impact, in international smart communities, health, fintech, digital business and marketing, and supply chain analytics.

## September

### Smart urban energy research grant

Municipalities and companies in Denmark and Sweden will be involved in research into smart urban energy with RSM plus three local universities; the Technical University of Denmark: Chalmers University of Technology; and Linköping University. Together, we received a grant of €1.5 million towards the FlexSUS research project that develops a decision-making tool to optimise smart urban energy systems and mitigate climate change. Heading the project for RSM is ECDA academic Dr Yashar Ghiassi-Farrokhi. The grant is from ERA-Net Smart Energy Systems programme and the Netherlands Organisation for Scientific Research (NWO).

### Diploma Programme in Digital Transformation, RSM

ECDA provides the academic underpinning for this executive programme about digital innovation and digital strategy. The teachers were several of ECDA's academic directors, and expert practitioners.

### Leadership Challenges with Data Analytics, RSM

Another run of the leadership programme developed and delivered by ECDA. Participants included the Municipality of Rotterdam, Quint, Siemens, ING, Erasmus University Rotterdam, insurance organisation Vivat, and Dutch power grid network manager Stedin. Participants worked on business cases about their own use of data in a learning-by-doing exercise, alongside coaching from ECDA academics and expert practitioners. They learned to apply data analytics technologies and AI, improved their business and communication skills, and boosted their understanding of privacy, security, ethics and accountability.

### SDG Insights: Reimagine the Cities We Live In, RSM

The first event in RSM's series of knowledge and networking events for the wider Rotterdam community, based on the role of business in achieving the UN's SDGs. The focus of this event was SDG 11 Sustainable Cities and Communities. Presentations were by Dr Marcel van Oosterhout, and Dr Pieter van den Berg on the introduction of electric buses in Rotterdam and what that means for network design, charging, and the use of renewable energy.

## October

### R for Data Science launch event, Erasmus University Rotterdam

An initiative of Turing Students Rotterdam, part of a global network of student tech communities. This session, supported by ECDA, on the subject of 'how to do data science' featured a presentation by ECDA's Dr Marcel van Oosterhout.

### RSM Leadership Summit, Rotterdam

RSM's annual event that engages everyone in the business community in a debate about issues and challenges in business and leadership, and presents inspiration and answers from international business leaders and thinkers. There was an audience of more than 600 at the 2019 event, which featured ECDA academic directors: plenary presentations from Prof. Wolf Ketter and Prof. Stefano Puntoni from RSM, and parallel sessions presented by Prof. Gui Liberali from RSM and Prof. Peter van de Spek from Erasmus Medical Center.

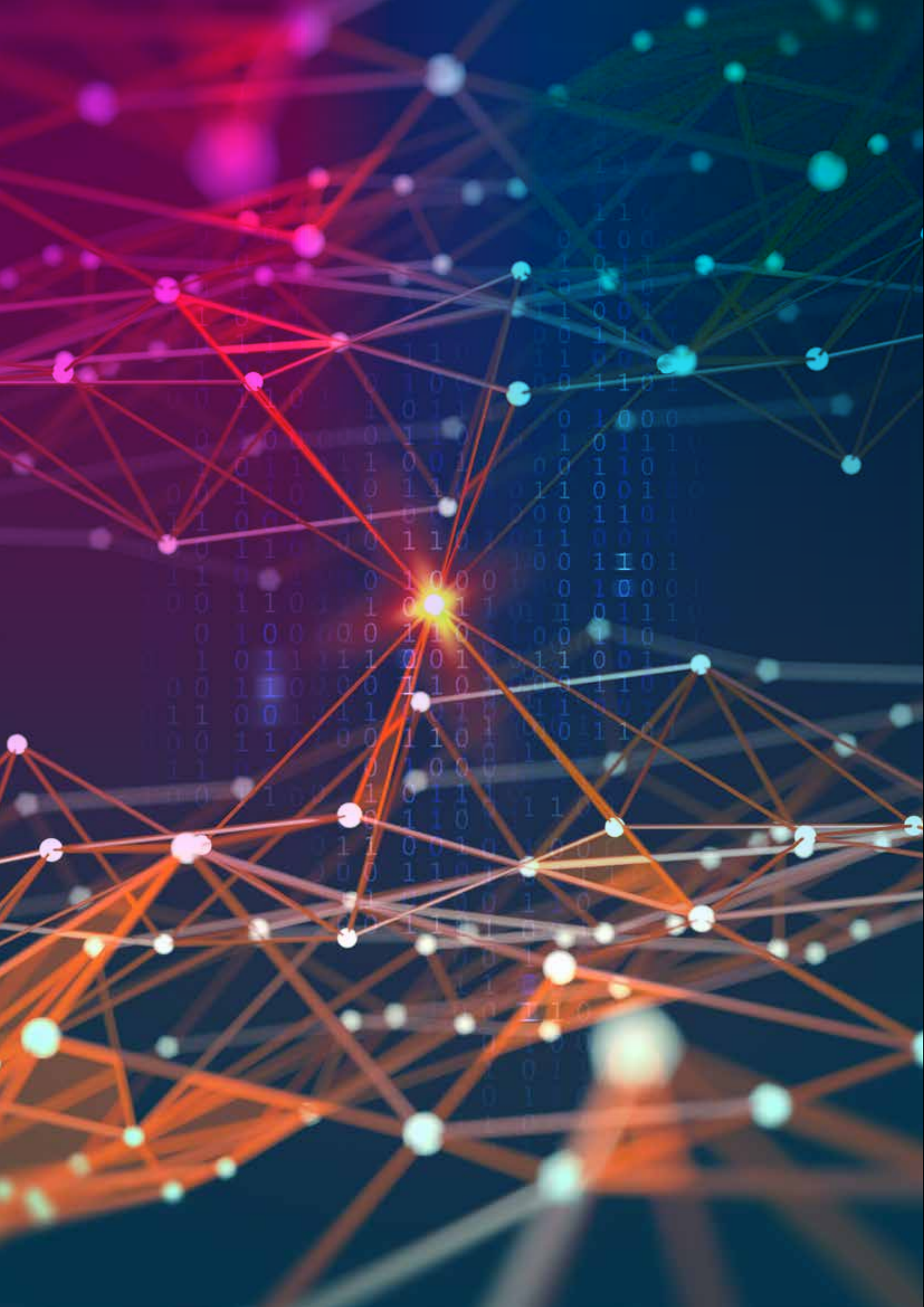
### Executive briefing, Innovation Board Roche, Woerden

A bespoke introduction to the subject of data, algorithms and their associated opportunities and challenges, prepared for the innovation board of healthcare, medicines and diagnostics company Roche, and presented by ECDA executive director Gerrit Schipper and Dr Marcel van Oosterhout.

### Diploma Programme in Digital Transformation, RSM

ECDA provides the academic underpinning for this executive programme about digital strategy. Teacher is ECDA academic director Prof. Ting Li, an expert in digital strategy, ecommerce, social media analytics, mobile marketing, business analytics, online advertising, and pricing and revenue management.





## November

### Congres Data en Beleid, The Hague

A conference about the transparency and potential of algorithms and data when used systematically to trace and help combat social abuse – and also when they can cause abuse; the conference organised by ScienceWorks explored data control policy. ECDA's Dr Otto Koppius gave a keynote presentation on 'Accountability of Algorithms' to government representatives, companies and academics. Sponsors included Leiden University, KPMG, and ECDA.

## December

### Clean Tech Delta energy transition seminar series

The first of a series of regular seminars on energy decarbonisation, decentralisation, and digitalisation. The aim is to share knowledge and constructive feedback on research, and to stimulate dialogue between corporates, academics and students. This initiative came from the collaboration between universities, knowledge institutes, cities, and companies called Clean Tech Delta, and ECDA's smart city and smart energy specialists.

## Looking forward to 2020 and 2021

We will consolidate our relationships and extend our network, continuing the progress we started in 2019. We should also be able to start the research we planned.

### Data challenge and summer school

Following the success of last summer's hackathon for 50 students from Erasmus University and the ECDA Data Analytics Summit, we plan another similar combination of events in 2020. The five-day summer school and hackathon will involve working closely with the Erasmus Tech Community and may host up to 250 students from Erasmus, Delft and Leiden universities. The event will comprise a combination of lectures by faculty and guest speakers, in-depth technical workshops and training sessions, and two different challenges in collaboration with two corporate partners. The topics will also cover links to one or more UN SDGs for social impact.

The summer school will end with the annual one-day ECDA Data Analytics Summit, with inspiring speakers and lively debates, as well as recognition and honours for the winning teams of the summer school hackathons.

### Our Data Collaboratory

AI is the result of the analysis of huge amounts of data requiring three techniques: data engineering, data science and data visualisation. Our original business plan included a Data Collaboratory – a physical place on campus – and this should come to fruition in 2020. It will provide space and facilities to teach, learn, and experiment with these techniques, and will be equipped with creative and stimulating tools to support research and education, and to increase our capacity and options with technical and practical support. This is where students from the Erasmus Tech Community and Turing Students Rotterdam can plan and execute their activities, where ECDA's business partners will meet to learn, share and research collaboratively, and it will be an open space for active learning and active research.

The Data Collaboratory will require substantial investment from Erasmus University Rotterdam, but will result in alignment of the university's existing expertise in data analytics and AI, as well as facilitating a more effective use of resources. Our chosen location on campus has enough space for ECDA to fulfil its ambitions for growth in capacity and functions. The Data Collaboratory will include high-quality workstations with high-resolution displays connected to a cloud infrastructure through fast connections. Our 'tech stack' will include functionalities from several suppliers. And it will include a multimedia-equipped boardroom and well-equipped project and meeting rooms.



# Founding partners; comments and testimonials

ECDA operates as an interdisciplinary hub at the centre of a network of academia, public and private organisations and student communities, and was established with the co-operation of a small number of founding partners from a range of sectors and industries:

- » **Coolblue**, online retailer operating in the Benelux countries
- » **Gemeente Rotterdam** – the city’s administrative council
- » **ING Bank NV**, a Dutch-based global financial institution
- » **Quint**, a leading digital transformation consultant
- » **Siemens**, an international and technologically pioneering organisation in electrification, automation and digitalisation.



## Coolblue: ‘We measure everything’

Online retailer Coolblue is a founding partner and will work with ECDA for at least three years. **Pieter Zwart**, founder and CEO said: “At Coolblue, we measure everything. We continuously use this data to amaze our customers. As a partner of ECDA, we’ll continue to exchange knowledge in the field of data analytics with academics and students. This won’t only help us to become a little bit better with data every day, but it’ll allow students to kick off their career by adding relevant analytical skills to their academic expertise. We want to challenge them to transform data challenges into even more happy customers.”



## Siemens: ‘Becoming a data native’

Executives from technology pioneer and founding partner Siemens took part in the eight-day leadership programme developed and delivered by ECDA. The programme, Leadership Challenges with Data Analytics, focuses on the organisational change involved in becoming a data-driven company. It included working on business cases about Siemens’ use of its own data in a learning-by-doing exercise, alongside coaching from ECDA academics and expert practitioners. The Siemens executives learned to apply data analytics technologies and AI, improved their business and communication skills, and boosted their understanding of privacy, security, ethics and accountability. “For every organisation, public or private, this leadership challenge is an amazing opportunity to work on data analytics with outstanding professors in order to become a data-native organisation,” said **Robin Kroonenberg**, chief digitalisation officer at Siemens Nederland NV.



## Quint: ‘Data into value is key’

Quint is a founding partner of ECDA. **Maurice Boon**, CEO, said: “Quint supports companies and organisations in designing and implementing their digital transformations. The ability to convert data into value is the key to the success of any digital transformation, and that is why we are a founding partner of the Erasmus Centre for Data Analytics.”



## City of Rotterdam: ‘The collaboration with ECDA helps the municipality to become more data-driven’

The City of Rotterdam is a founding partner. Alderman **Barbara Kathmann** is vice-mayor of economy, districts and small localities. She said: “Cities need to establish a strategy, build their analytics capacity, and work with partners, including academia, to establish a data commons that can benefit all. The collaboration with ECDA helps the municipality to become more data-driven. Multidisciplinary teams participate in the training programmes and develop concrete proof of concepts; it’s hands-on training. We’re helped by the research and student engagement in European smart city innovation programmes to develop the new insights that we need to become smarter and more sustainable. Our partnership with ECDA provides us with the opportunity to position the municipality as an attractive employer among young talents who want to work on societal impact.”



## ING: ‘Effortless, frictionless service’

ING is also a founding partner of the Erasmus Centre for Data Analytics, and has ambitions to use advanced analytics in its operations globally; the bank believes that it’s key to providing a smooth customer journey for its clients. Empowering customers to stay a step ahead comes from understanding how and when they need the bank’s services, and then by providing personalised service in an effortless and frictionless way. **Annerie Vreugdenhil**, head of innovation at ING Wholesale Banking: “Academic partnerships ensure that we are inspiring our people to innovate at the cutting edge, enabling them to build differentiating experiences for our customers. The Erasmus Centre for Data Analytics provided the ING team with the content, context and coaching necessary to actively contribute to our goals.”



Interviews with Prof. Ting Li and Gerrit Schipper give a more in-depth look at ECDA's activities, recently published in RSM's research magazine, *RSM Discovery* issue 37.

By Bennett Voyles  
[rsm.nl/discoverymagazine](https://rsm.nl/discoverymagazine)

# A big tent for big data

Six months after launch, the Erasmus Centre for Data Analytics is already bringing together business executives, government leaders, and university scholars to meet the societal challenges of digital transformation.

**R**oughly every half-century, a technological advance occurs that disrupts everything. From steam to electricity to computers, such shifts have led inevitably to major changes in how the world works. Now, business, government, and society as a whole are undergoing another fundamental shift that some are calling the digital transformation – the rise of the hyper-connected, data-driven organisation.

Two years ago, Erasmus University Rotterdam (EUR) data scientists and friends of the university working in technology began discussing whether Rotterdam School of Management, Erasmus University (RSM) or the university generally had the right organisational structure in place to address the challenge of big data. Although EUR had world-class data scientists and strong IT scholars, they concluded that the answer was no – the expertise was too scattered around the university, and outsiders who wanted to consult faculty on data analytics questions had no single point of contact to direct them to the scholar with the most appropriate background.

To succeed in this new era of an ever-growing stream of data that needs interpretation, RSM needed a broader, more holistic response to the digital challenge, one that would tap the full strength of the EUR community while building closer connections with enterprises that are working with data. As Rotterdam analytics entrepreneur Gerrit Schipper puts it: "You cannot look at data analytics

in isolation anymore. It is not just influencing technology, operation management, or marketing – it's influencing whole industries." The outcome of those discussions was the Erasmus Centre for Data Analytics (ECDA). A cross-disciplinary organisation launched just last summer, ECDA is already offering a number of companies easier access to university data experts, providing the university's data scientists with a stream of interesting projects to work on, and giving students exposure to complex, real-life data problems. "Faculty, students, alumni, and practitioners from in and around the university are being brought together by this centre," explained Ting Li, endowed professor of digital business, academic director of the MSc Business Information Management at RSM, and founding member of ECDA.

The concept behind the centre is to align all data analysis research at EUR, help scientists, students, public and private organisations, to collaborate in a multidisciplinary fashion, and finally, to give full-time and continuing education to students looking for hands-on education of and training in data science, data visualisation, and data engineering.

## Open for business

Although only launched in June 2019, ECDA is already serving as a big tent for all kinds of analytics-related research and discussions, with a particular focus on the analytical issues raised by enterprise-wide digital transformation initiatives.

One of ECDA's early advocates, Gerrit Schipper, has signed on as its first executive director. A veteran technology executive and serial entrepreneur who serves on several tech company boards, Schipper has moved quickly to find more faculty members, corporate partners, and students interested in today's data challenges.



In addition to EUR, ECDA has the support of five founding corporate partners: Coolblue, a successful Dutch e-tailer; Siemens, an industrial giant; Quint, a tech consultancy; ING, a financial service corporation; and the City of Rotterdam. All partners signed up as lead sponsors for the next three years, making not only a financial commitment to the centre but also a commitment to participate in a research partnership that includes contributing data and sending executives to executive educational programmes.

In addition to the five founding partners and their generous financial support, a number of other companies – including VIVAT, ALLSAFE and FloraHolland – have been supportive of ECDA, even before its inception, with each organisation sponsoring multi-year PhD research.

According to Schipper, ECDA provides benefits for all its stakeholders. For companies, the partnership with ECDA gives them access to leading data analytics scholars and some of Europe's brightest young analytic talent. The ECDA-affiliated students include master and PhD candidates currently studying at RSM who are working on projects that range from digital business, marketing and supply chain analytics, to auditing, accounting and control, fintech, and smart cities.

"Our faculty members have not only deep scientific knowledge but also acute business insights. Their research can help organisations understand more of their business and inspire innovations," explained Schipper.

At the same time, ECDA's commercial partnerships will offer EUR scholars access to interesting intellectual challenges, he says. More important than the financial support is the partners' commitment "to supplying interesting cases and data for faculty and students to work on, because it's not just about the money; it's about learning how it is all working in practice," Schipper said.

"You cannot look at data analytics in isolation anymore. It is not just influencing technology, operation management and marketing – it's influencing whole industries."

**Gerrit Schipper**, executive director, ECDA

"Data analytics research needs real quantitative data from real companies," Li explained. "Having data from different industries, in different forms, both structured and unstructured data, and complete and incomplete sets, creates challenges for us and good training for students," she said.

Those ECDA-sponsored projects give students first-hand experience working on real cases, helping them learn to make the judgments that working analysts must constantly make about how to work with and interpret 'dirty' data, according to Schipper.

All these aspects should offer students excellent opportunities to build their analytical skills, according to Li – and in the end, the ability to use those skills is the most valuable part of that education. As Li puts it: "Analysing data is one thing, but asking the right questions, using the right methods to answer these questions, and presenting the findings to stakeholders are even more important."



"Faculty, students, alumni, and practitioners from in and around the university are being brought together by this centre."

**Prof. Ting Li**, academic director of digital business, ECDA

### Mutual benefits

At the ECDA launch, Coolblue founder and CEO Pieter Zwart saw mutual benefits too. "This won't only help us to become a little bit better with data every day, but it'll allow students to kick off their career by adding relevant analytical skills to their academic expertise," explained Zwart.

Schipper said that he hopes this close contact with industry will make RSM graduates' transition to the working world of analytics easier. Reflecting on his own experience running an analytics business, he recalls, "I often hired the best possible students from the university, but then it took six to nine months for them to make any money for my organisation, because they were excellently educated theoretically, but not in practice."

Giving students the chance to work during the course of their education with corporations, with public organisations like municipalities, and to handle real data so that they could discover that data is not as clean as most of the lecture books or textbooks are assuming – that's very important," he said.

Tangible benefits for ECDA stakeholders didn't take long to accrue. The June launch event included not only a conference on data analytics but also a hackathon in which RSM students competed to solve a real-life problem for Coolblue. By the end of the contest, the e-retailer got its solution and the winning team walked away with a cash prize given to them by the keynote speaker, Frans van Houten, CEO of Royal Philips Electronics and EUR alumnus.

### Education and collaboration

Executive education features prominently in the activities of ECDA. For example, in September, twenty-five participants began a four-month, two-day-a-month executive education programme called Leadership Challenges with Data Analytics, which is taught by faculty members from EUR and Delft University of Technology. In parallel, over those four months, the executives bring in their own challenges, their own case and data problems, and work with the faculty members to come up with proposals that they can take back to their boards at the next quarter's meetings. "So you see already, an application of the centre that is very fruitful for both faculty and students as well as organisations," Schipper points out.

Looking ahead, Schipper says, the next item on the agenda is to build a dedicated, state-of-the-art data lab for ECDA, which will make it easier for students and outside-industry representatives to get together to discuss common issues. The location of the physical space is still being worked out, but a number of companies have already expressed an interest in providing its virtual furnishings, including HAL24K, SynerScope, Tableau, Celonis and Widget Brain.

As well as a range of educational programmes tailored to different audiences, and the development of a state-of-the-art lab, ECDA is organising industry-academic seminars, summer schools and workshops, and facilitating joint research activities and other collaborative ventures focused on knowledge creation and help partners identify new business opportunities.

**For more information about the Erasmus Centre for Data Analytics and its activities, visit [rsm.nl/ecda](https://rsm.nl/ecda)**

# Meet the team

## Executive directors



**Gerrit Schipper** is executive director of ECDA. He has vast experience in senior management for blue chip and multinational organisations, and uses his skills as a networker and expert on management to establish long-term strategic collaborations with partners for ECDA outside the academic world, from public and private sectors. His sense of curiosity and awareness of future technologies means he can identify connections between ideas, people and companies, and make them happen.



**Dr Marcel van Oosterhout** is assistant executive director at ECDA. He has great experience in project development and project management, and is an active researcher involved in several national and EU-funded research projects on smart cities, business agility and IT. He coaches master students in business information management. He initiates and develops innovative ideas and projects that bridge science and practice, and those that combine people, technology, knowledge and innovation.

## Academic directors



**Prof. Ting Li** is endowed professor of digital business at RSM and an expert in digital strategy, ecommerce, social media analytics, mobile marketing, business analytics, online advertising, and pricing and revenue management. She has been a visiting professor at the Wharton School of Business, Temple University, Arizona State University, City University of Hong Kong, and Tsinghua University. In 2017, she was named by Poets & Quants as one of the Top 40 Professors Under 40 Worldwide.



**Prof. Gui Liberali** is endowed professor of digital marketing at RSM, with a highly singular and distinct expertise in marketing analytics and advertising analytics. He focuses on concrete solutions, often based in marketing algorithms and mathematical optimisation models. These help organisations to identify the best actions for effectively increasing revenue, profits or market share. His research interests include optimal learning, multi-armed bandits, digital experimentation, natural language processing, morphing theory and applications (e.g., website morphing, ad morphing), dynamic programming, machine learning, and product line optimisation.



**Prof. Wolfgang Ketter** is professor of next generation information systems at RSM and chaired professor at the University of Cologne in Germany, where he is director of the Institute of Energy Economics. He is also an agenda contributor to the World Economic Forum global future council on mobility, leading the discussion on autonomous systems, energy and mobility, and an advisor on energy policy to the German government.





**Dr Yashar Ghiassi-Farrokhfal** is assistant professor at RSM and expert on energy systems, electricity markets, storage systems, market design and analysis, and city-wide energy planning. Prof. Ketter and Dr Ghiassi-Farrokhfal work on introducing methods, models, and principles to guide cities to become 'smart' and sustainable by using data and analytics. Their laboratory collaborates with the City of Rotterdam and local business stakeholders in the EU-funded RUGGEDISED project, part of a wider European network of such projects. It also links to the marketplace of the European Innovation Partnership on Smart Cities and Communities (EIP-SCC).



**Dr Dion Bongaerts** is associate professor of finance at RSM. He works on promoting and streamlining interdisciplinary academic research in fintech, aligning it with the needs and interests of industry practitioners. He specialises in the behaviour of credit rating agencies, the pricing of credit risky instruments, and the origins and effects of market illiquidity. He represents RSM in the research project that was granted €3.3 million in late 2019 to start an online community of 50,000 internet users to evaluate the principles of an 'internet of trust'. The interdisciplinary Sovereignty4Europe project uses computer science, economy and legal knowledge in a system that uses a blockchain that allows anyone to assess their level of trust in a person or company.



**Dr Iuliana Sandu** is a senior lecturer at RSM, and specialises in audit, accounting and control analytics, at the crossroads between accounting and data science. She addresses accounting professionals' lack of technical expertise to deal with big volumes of diverse data, and data analysts' lack of domain expertise to identify the real needs of a business that are not always answered with a machine-learning algorithm. Her part in the team builds on the inherent advantages of the accounting profession to provide businesses with an insight into the quality of data, algorithms and their value for the business.



**Prof. Peter van der Spek** is professor of bioinformatics at the Erasmus Medical Center. Bioinformatics combines interdisciplinary data and resources, as well as expertise, and conducts biological studies that use computer programming as part of their methodology. These studies are used to identify candidate genes that are associated with a particular disease. This type of molecular biology techniques requires computer science expertise, information engineering, mathematics, and statistics to support the diagnostics of complex patients.



**Prof. Klaus Heine** is professor of law and economics, and director of the Jean Monnet Centre of Excellence on Digital Governance at the Erasmus School of Law. Digital Governance (DIGOV) is the name of the Jean Monnet Center of Excellence, awarded by the European Commission to the Erasmus School of Law. It is recognition of Erasmus School of Law's leadership in research into the legal consequences of technological disruption.



**Prof. Liesbet van Zoonen** is professor of sociology at the Erasmus School of Social and Behavioural Sciences. Her research focuses on three sub-themes: the use of data and digital technologies to aid vulnerable urban groups; enhancements of new forms of urban participation and governance; and development of urban data literacy and democratic legitimization. Her work for ECDA focuses on appropriate data governance and management, and particularly about the social, ethical and individual consequences of the urban data revolution for people in the city.



**Dr Robert Roederkerk** is associate professor of operations management at RSM, focusing on supply chain analytics and the effective and efficient management of the products and services lifecycle, based on using data and analytics. The supply chain analytics lab examines optimisation and sustainability based on data analytics, data analytics, digitalisation and AI for Ports, terminal optimisation, transportation management, operations management and purchasing and supply management.



**Prof. Stefano Puntoni** is professor of marketing at RSM. Successful introduction of advanced analytics—whether in companies or market offerings—ultimately rests on human users' beliefs and adoption behaviour. The Psychology of AI lab examines the human side of data science. Most of Prof. Puntoni's ongoing research investigates how new technology is changing consumption and society, with a focus on automation, artificial intelligence, and the general topic of technological unemployment. He is a former Marketing Science Institute Young Scholar, a current Marketing Science Institute Scholar, and the winner of several grants and awards, including a Marie Curie Fellowship from the European Commission.



**Prof. Payal Arora** is professor and chair in technology, value and global media cultures at the Erasmus School of Philosophy. She is a digital anthropologist and author of several books. Her expertise is in bringing together tech platforms, digital marketers, designers, think-tanks, and digital anthropologists to venture into the understanding of user behaviour and motivations alongside their socio-specific realities, tech affordances and legal and institutional structures.

# ECDA's offerings

## In touch with talent

Present your company to our students in various programmes, events and platforms.

## Thought leadership

Become inspired by academic thought leaders and industry leaders in the field of data analytics.

## Access to academics and alumni

Learn with alumni and interact with research fellows and the ECDA team.

## Access to ECDA's data hacking community

Join crowdsourcing and data hacking events.

## Education and training

From case studies to senior executive briefings, jointly we train leaders with the skills and competencies for tomorrow's business.

## Engage with research

Raise research questions for the master and PhD studies, discussing issues between industry, government and academia.

## Data Collaboratory

Join the founding partners in the development of a digital technology lab as test bed for innovative methodologies. *We are currently developing our Data Collaboratory as a home for our library of algorithms, company data sets, use cases and minimum viable product developments, and for our workshops.*

## Colophon

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Founding partners



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