Erasmus Centre for
Data Analytics

A year in review 2021

Artificial Intelligence, Data and Digitalisation

In Research, Education and Valorisation

Erasmus University Rotterdam


EXPORTSYMBOL(groupsalloc);
void groups_free(struct group_info *group_info)
{
if (groupinfo->blocks[0] != group_info->small_block) {
int i;
for (i = 0; i < group_info->nblocks; i++)
freepage((unsigned long)groupinfo->blocks[i]);
kfree(groupinfo);
}
EXPORTSYMBOL(groupsfree);
/* export the groupinfo to a user-space array */
static int groups_touser(gid_t _user *grouplist,
const struct group_info *group_info)
int i;
unsigned int count = groupinfo->ngroups;
for (i = 0; i < group_info->nblocks; i++) {
unsigned int cpcount = min(NGROUPSPERBLOCK, count);
unsigned int len = cpcount * sizeof(*grouplist);
if (copyto_user(grouplist, group_info->blocks[i], len
return -EFAULT;
mod.use_x = False
mod.use_y = True
mod.use_z = False
operation == "MIRROR_Z":
mod.use_x = False
mod.use_y = False
mod.use_z = True
.active = modifier_ob
ion at the end -add back the
ob.select= 1
ob.select=1
ext.scene.objects.active = modifier_
"elected" + str(modifier_ob))
the selected object"""
mirror_x"

A year in review 2021

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"The social impact of AI dwarfs the impact of AI on technology"

Gerrit Schipper

1/ Introduction

A huge milestone for us and our partners last year was the opening of the Erasmus Data Collaboratory in the Polak building on the EUR campus. The Collaboratory, as we dubbed it, is a central place where students, academics, public and private partners meet to work on data and AI-related missions using state of the art technology. The Collaboratory is a place where talent can get both a technical and a social understanding of AI.

The Collaboratory enables us to focus on exploring new ways to make the talent of the Erasmus University Rotterdam (EUR) and the talent of our public and private partners, more data competent. Data competency and stimulating the understanding of the social impact of AI in a safe space are the fundamental goals steering our projects at the Erasmus Centre for Data Analytics (ECDA).

In doing so, we acknowledge the great need for talent that is data-savvy and ready for digital transformation. These competencies, which to us are always a combination of knowledge, skills and the right mindset are instrumental in tackling big societal challenges like for example climate change.
We have therefore introduced leadership challenges around data analytics to stimulate data competency throughout our entire network. Our public and private partners can bring their data, and work on their challenges together with our students, academics, and business coaches; allowing their ideas to reach the proof of concept or even proof of value stage.
As a spin-off, we created in conjunction with Zone Studiedata (Versnellingsplan) and SURF a leadership challenge tailored to the educational sector. Several universities, including universities of applied sciences, have already confirmed their participation.

In the past years, the focus was on making ECDA as effective as possible by creating our Expert Practices. Allowing our academic directors to focus on their specific area of expertise and making it easier for our partners to engage in specific transdisciplinary projects that strengthen their mission. Now we want our ecosystem to further grow and strengthen.
The Collaboratory will serve as the home of AI for these Expert Practices, reinforcing The AI, Data and Digitalisation Convergence Initiative of Leiden University, Delft University of Technology and Erasmus University Rotterdam in which several of our academic directors participate. Leading the development of a shared data infrastructure between these top universities with The Collaboratory is an important step in this ecosystem development.

I am looking back with great satisfaction on last year, but it has raised the expectation for the coming year. We will further progress our collaborations by bringing together students, academics and public and private organisations, and aim to bring The Collaboratory into the next phase. We want to create a data sandbox for our stakeholders to experiment, stimulating proof of value and driving innovations. Currently, we are looking for additional funding to accelerate implementations.

Thank you for your contributions as a student, academic, staff member or external relation.
Thank you for being a valuable partner to us.
Together we can make a positive impact.

Regards,

Gerrit Schipper
Executive Director of Erasmus Centre for Data Analytics (ECDA)

2/ About the Erasmus Centre for Data Analytics

The Erasmus Centre for Data Analytics (ECDA) was established to prepare society for a sustainable data-driven future; a future that requires data competent talent that is yet hard to find. This lack of skilled talent threatens the digital transformation that is key to tackling many challenges such as climate change. To fulfil our purpose, we focus on making talent data competent using the following five guiding principles:

1. Teach talent all about the power of data and how to turn data into valuable information. By doing this hands-on, through action learning with real-life cases, we combine knowledge about data with skills in processing data and the proper attitude. In this way, we train data-competent talent to make wiser decisions in a larger context and prepare them to become digital leaders for a sustainable future. We address talent from our ever-expanding eco-system that consists of both public and private organizations, multinationals and start-ups, municipalities, and associations, as well as talent from our on-campus partner organisations, such as the Turing Students and Erasmus Tech Community, a student organisation, with over forty-five hundred students, from all academic disciplines.

2. Monitor the AI, Data, and Digitalisation-related activities of all schools of the Erasmus University Rotterdam, so that we can turn individual expertise into transdisciplinary Expert Practices, collaborating in AI and data research, education, and innovation. Expert Practices cover the vertical application domains: public sector, energy and sustainability, ports and maritime, health, and industry at large. Additionally, Expert Practices cover the horizontal foundational domains: organisations and governance, methods and technologies, and human behaviour and societal impact. This way ECDA operates de facto as an interfaculty centre, and thus facilitates talent with trans-disciplinary collaboration.

3 Operate the Erasmus Data Collaboratory, a space where our stakeholders can collaborate on data-related challenges. With the support of the various tech partners that donate their technology, the Collaboratory will exploit a 'Data Sandbox'. The sandbox may be used for activities that vary from general experimenting with data to building a proof of concept. It supports data-sharing in a safe and secure environment. As an instrumental part of the Convergence House of AI, a collaboration between TU Delft, Leiden University, and Erasmus University, the Erasmus Data Collaboratory offers talent an impressive space to improve skills in AI, with AI. Through this we can address the full spectrum of AI, Data, and Digitalisation; from hardcore AI technology to ethics in AI, from methodologies to business consequences. Stakeholders too can benefit from the strength of the Convergence.

4 Facilitate strategic initiatives, that place talent, and society, centre stage; particularly initiatives that create an impact by tackling business, legal, economic, and societal challenges. Initiatives that involve the industry in challenging real-life projects. This enables talent to develop both their skills and attitude in the real world.

5 Develop scientific models, methodologies, and processes that are validated by business practices. Collaborations between Academia, Government, and Industry support talent in acquiring knowledge, adapting skills and growing the right attitude through impact challenges and co-creation. Connecting Education, Research, and Innovation, creates value for all collaborating partners in the process. We have developed a Stakeholder Collaboration Model for this to give direction. A central focus is put on the data-readiness of organisations. For instance, frameworks to take inventory of the data capability are available and very useful to prevent unnecessary investments in resources.

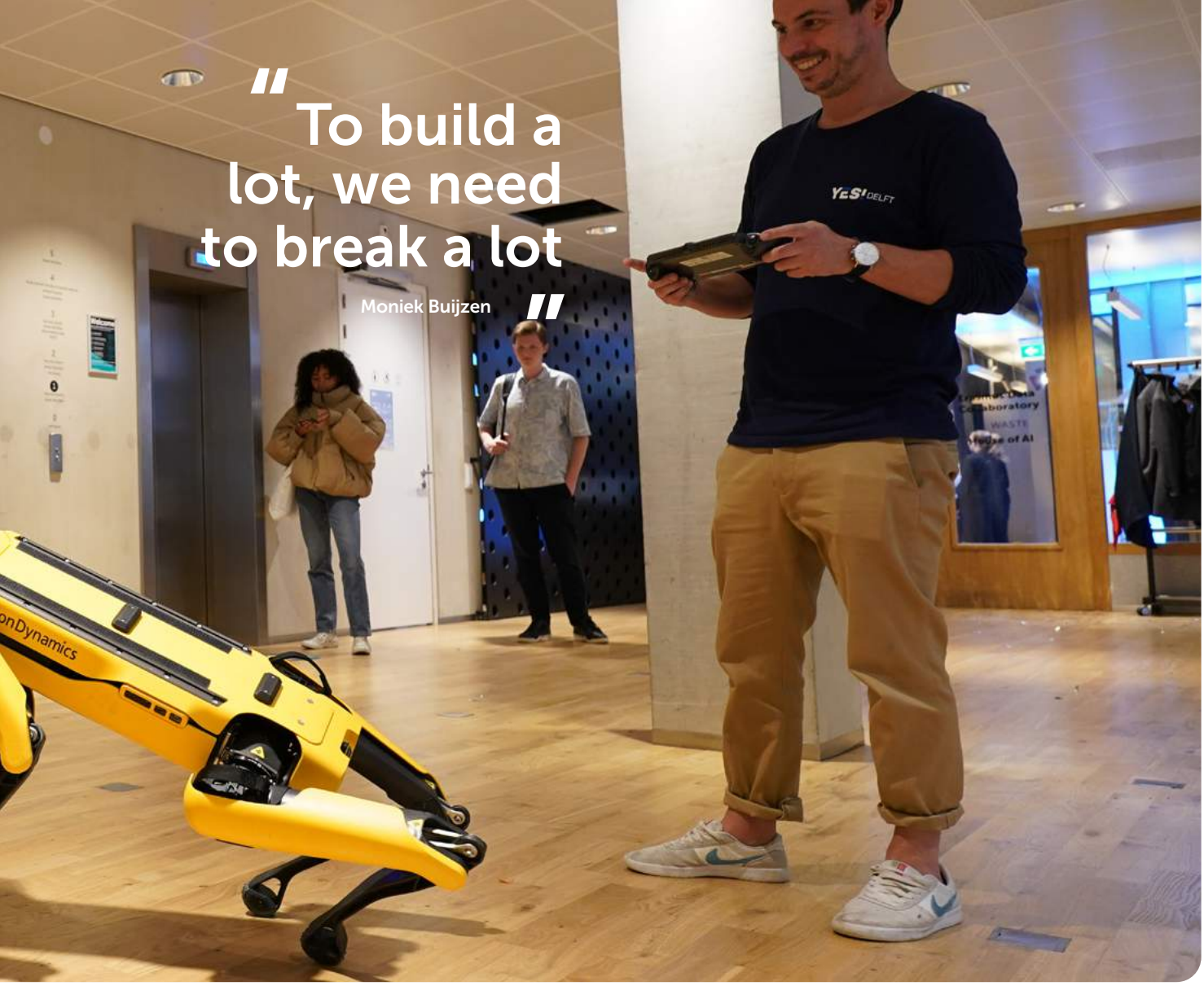
The Erasmus Centre for Data Analytics, Founded by the Rotterdam School of Management (RSM), holds strategic importance for the Erasmus University Rotterdam in terms of enabling it to stay well-connected to the development of technology in general, and data analytics and artificial intelligence in particular. 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.

eur.nl/ecda

3/ Cocreating the Societal Impact of AI

We already see AI everywhere in our daily lives, grocery shopping apps, workflow systems, social media feeds, and dating lives. The use of AI has become so naturally intertwined with everyday functions that we often forget to think about the future.

We should ask ourselves the question of how we can unlock AI's full potential while keeping its risks at a minimum. To investigate this question, we need to work together. We need to discuss and collaborate, and set the expectations and the conditions of how we want AI to impact our society, and society to impact AI. This collective effort requires the involvement of all stakeholders, and this effort is what we aim to accomplish with Erasmus AiPact. The Erasmus Initiative, 'Societal Impact of Artificial Intelligence' (AiPact), is one of the four transdisciplinary initiatives of Erasmus University Rotterdam and part of ECDA. AiPact will not only be based in the university but will be a structural collaboration between science and society.
From our perspective, society includes stakeholders



such as institutions, organizations, and enterprises, but most importantly: citizens. Citizen engagement is essential to co-create human- or society-centred AI, striving for human and societal augmentation with AI. To co-create the societal impact of AI, we need all human minds.

We need to build, which takes a substantial effort to make happen. Consequently, to build, we need to break a lot first by breaking old walls between society and science and those between the long holding academic disciplines and institutes. Break with old customs of evaluating relevance and revenue. Break them to build new bridges and collaborative tools. Give the floor to future scholars by attracting and supporting creative and autonomous young minds and creating the circumstances for them to flourish.

Fortunately, we are not starting from scratch, and we are sprouting in fertile soil. AiPact's future-oriented approach is perfectly aligned with what ECDA has started working towards in the past years. We can follow new trends in academia, embracing team science and talent diversity. We follow the mission of Erasmus University to (co)create a positive societal impact. Our transdisciplinary and human-centred approach--exploring the domains of health, work, communication, and arts—dovetails perfectly with the convergence with the Erasmus Medical Centre and Technical University Delft and the structural collaboration with the renowned Rotterdam art schools. We are ready for this adventure.
We are ready for the future.


Regards,

Moniek Buijzen and Gerrit Schipper
co-leads of the Erasmus AiPact Initiative

4/ Expert Practices

ECDA constantly aligns AI, Data, and Digitalisation-related activities and expertise of all schools at the Erasmus University Rotterdam and turns individual expertise into trans-disciplinary Expert Practices, collaborating in AI and data research, education, and valorization. Our expertise comes from world-class academics across all faculties and research centres part of Erasmus University Rotterdam.

We make expertise available across a wide range of domains in business, public organisations, and society at large. This way we can bring a holistic and multi-disciplinary perspective to solving societal challenges and stimulate innovation crossovers among different Expert Practices. Since the start in 2019 with five Expert Practices, we have grown this year into twenty-six, led by academics from various backgrounds (business, economics, law, social sciences, health science, and computer science).

Our Expert Practices cover five vertical application domains and three key horizontal foundational domains. This way ECDA can operate de facto as an interfaculty centre, and thus facilitate talent with trans-disciplinary collaboration in relation to AI, Data, and digitalisation; collaboration in research, education, and valorisation.

Five Application Domains (with 10 Expert Practices):

1. Industry (Retail, Fintech, International commodity trade)
2. Health, pharma & care (Health and management AI; Bioinformatics; AI for precision health)
3. Ports & maritime (Sustainable global supply chains and ports)
4. Energy & sustainability (Smart energy and sustainability)
5. Public (Inclusive smart cities and communities, public safety & security)

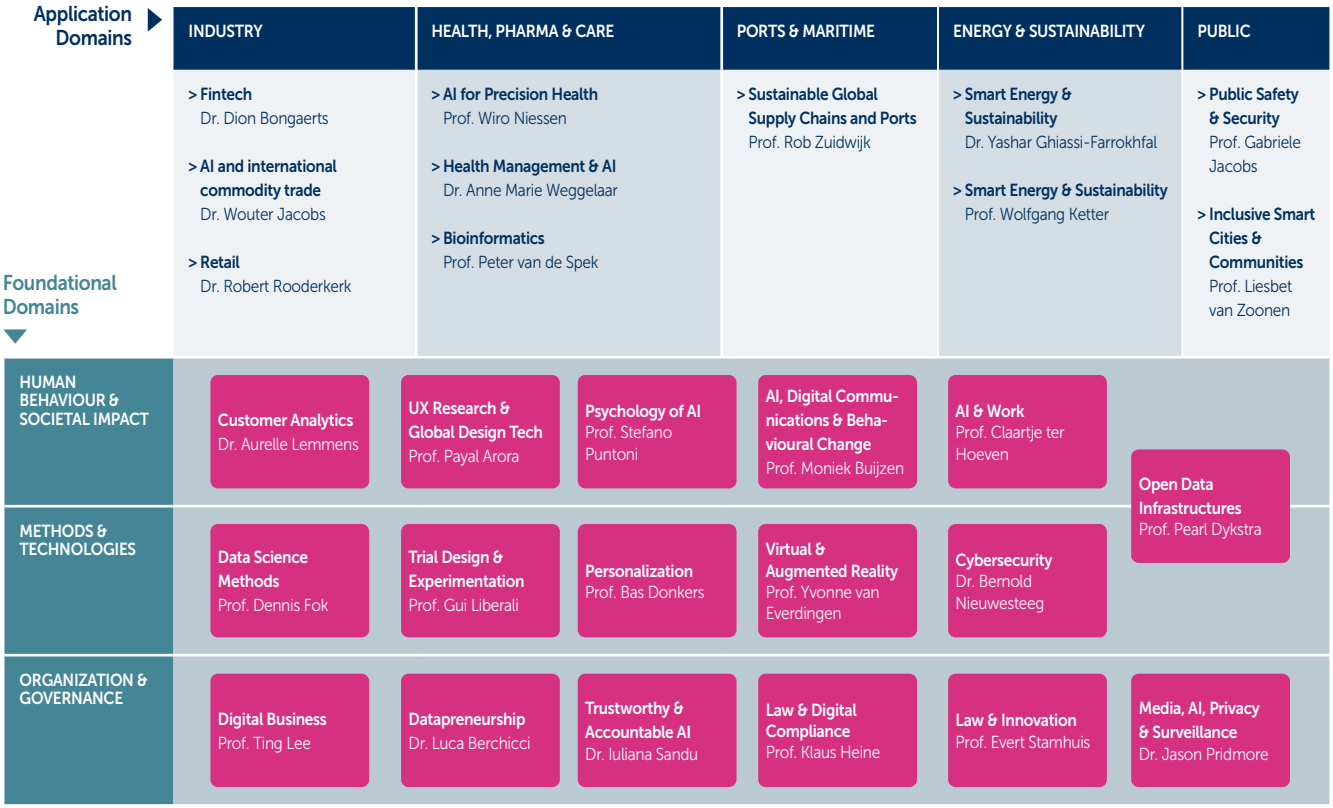
Three organisational foundations for creating value from data, digitalization, and AI (with 16 Expert Practices):

1. Organisation and governance.
Expertise focuses on how to create the right organisational conditions, structure, entrepreneurship, and capabilities to realise value from the use of data, digitalization and AI, while incorporating accountability, privacy and ethics. (Expert Practices include Digital business; Datapreneurship; Trustworthy and accountable AI; Law, innovation & digital compliance; Media, AI, privacy and surveillance)

2. Methodologies and Technologies.
These Expert Practices focus on what data science methodologies to use for solving specific challenges, how to design specific technologies and how to assess the impact of specific technologies on performance and value generation. (Expert Practices include Data science methodologies, Trial design and experimentation, Personalisation, Virtual and augmented reality, Cybersecurity, Open data infrastructures)

3. Human behaviour and societal impact.
These Expert Practices focus on how to design and balance human user experience and behaviour with the use of analytics and algorithms in tech design and decision making. These practices aim to understand the human perception on the use of algorithms in business and society, and more general the impact of data, digitalisation and AI on society and implications for work and jobs. It puts the human centre stage. (Expert Practices include Psychology of AI; AI, digital communication, and behavioural change; User experience research and global tech design; Customer analytics, AI and work).

We expect the innovation potential to be especially present in crossovers between different expert practices. For example, the application of specific algorithms developed in the context of retail industry applied in public application domains, such as: Health, Pharma & Care and Public Safety & Security.



Expert Practices in the spotlight in 2021: A selection

Data driven solutions by students Data Science and Marketing Analytics for organisations

Expert Practice: *Personalisation*

Students in the ESE Data Science and Marketing Analytics master program have worked full-time to provide theoretically grounded, data-driven solutions to five real-life business cases. In these cases, students:

1. built personalised recommendation systems for SphereMall;
2. made individual-level purchase and e-mail engagement predictions for Feyenoord fans;
3. assessed the short-term impact of TV commercials on Coolblue's website visits and tried to determine the causes of such increases;
4. developed data-driven recommendations to improve the efficiency of KPN direct marketing campaigns across channels, from e-mail marketing to telemarketing; and
5. used text mining tools to help UNICEF improve their social media communications.

It was a great experience for the students that provided valuable insights for the participating companies!

Principle Investigator for UX design for refugees' engagement; UNHCR Innovation Services partnership 2021

Expert Practice: *User experience (UX) research and global tech design*

While the UN Refugee Agency (UNHCR) has pursued an agenda of enhanced connectivity and digital inclusion for the forcibly displaced for a number of years. Many of the interventions have been tied to specific developmental goals, such as education, the use of digital financial services, and greater access to information. There is an emerging theory that challenges the notion that those targeted with such interventions prioritise connectivity for these purposes. On the contrary, the agenda highlights leisure as a key driver for the adoption of digital technologies, and a key use case for such technologies that bring indirect benefits beyond the 'virtuous' aims of humanitarian aid and development programmes globally. To explore these issues further, UNHCR and Prof. Payal Arora at Erasmus University Rotterdam teamed up with specific expertise with experience on digital leisure issues amongst marginalised populations. Their joint forces focus on a new project that will apply the theory in a forced displacement context, undertaking primary research with communities in Brazil to hear directly from them about how leisure and entertainment impact their use of digital technology. **Read more >**

Cyber Security Annual Report (CSAR)

Expert Practice: *Cyber Security*

In 2021 ECDA's expert practice on Cyber Security conducted a second research endeavor with their Cyber Security Annual Report (CSAR)-Index. This annual index aims to investigate the extent to which listed companies are transparent regarding their cybersecurity measures. It was found that companies' transparency regarding such measures significantly increased compared to the earlier measurements. However, it was also found that transparency regarding the costs of cybersecurity measures often still falls short. The results of the research are published in an article of the "Tijdschrift voor vennootschapsrecht, rechtspersonenrecht en ondernemingsbestuur".

Nederlands Cyber Security Lab (NCSL) and PhD programme

Expert Practice: *Cyber Security*

The "Nederlands Cyber Security Lab" (NCSL) is the result of a collaboration between the Centre for the Law and Economics of Cyber Security (CLECS), Cyberveiligheid Nederland, and the Centre of Expertise Cybersecurity (THUAS). The NCSL is built on the assumption that cybersecurity challenges can most efficiently be tackled when academia, business organizations, and governmental organisations combine forces. It strives to provide such solutions by incorporating academic and private actors in inten-

sive discussion sessions centered around a particular case. We are very happy to announce that in 2021, the first two NCSL-sessions were held.

In 2021 CLECS created three PhD projects on cybersecurity. Two positions are co-funded by Ahold Delhaize and the Dutch Ministry of Infrastructure and Water Management. The third position is the result of a collaboration with Leiden University and Delft University. After the application procedures that have taken place in the beginning of the year, 2022 will highlight the start of these projects.

12 Knowledge Video Clips on Big Data in Healthcare

Expert Practice: *Health and Management AI*

With a large team of researchers 12 video clips on big data in healthcare were made for the Masters' program course: Data-Driven Dreams-The potential and challenges of data driven technologies in healthcare. The video clips explained the potential of big data technologies for lasting impact on the patient centeredness, effectivity and efficiency in healthcare. In the clips a new business model was shared using an adjusted business model canvas. The clips also featured the challenges faced in the development, implementation and adoption of big data technologies in healthcare. Additionally, in they show insights on the role of macro level stakeholders on the uptake of big data in healthcare including privacy, security, legal and ethical demands.
View video clips >

BigMedilytics project successfully finished

Expert Practice: *Health and Management AI*

Researchers from the Erasmus School of Health Policy and Management and the Rotterdam School of Management, Erasmus University finalized the BigMedilytics project. BigMedilytics was one of the largest EU funded projects on big data in healthcare. The project included twelve pilots covering three themes with the greatest impact on the healthcare sector: population health and chronic disease management, oncology and operations and equipment cost. The first two comprise 78% of the deaths in healthcare and the last 33% of the expenditure of the sector. We were responsible for Work package 5 studying the business aspect and uptake of big data technologies in healthcare. The EU committee expressed their gratitude for the achievements gained.
Read more > and the **overarching lessons learned >**

Future of Retail Analytics study

Expert Practice: *Retail Analytics*

As part of an ongoing study on the state and future of retail analytics, Dr. Robert Rooderkerk, Associate Professor of Operations Management at the Rotterdam School of Management , with co-authors Dr. Nicole DeHoratius (University of Chicago) and Dr. Andrés Musalem (University of Chile) interviewed more than 20 practitioners on the state of analytics in retail practice. Participants represented a wide range of companies including Alibaba, Amazon,

Harrods, Walmart, Wayfair, Target, and IJsvogel Retail BV. There was a broad consensus within the interviewees that the retail analytics currently in use are mostly basic and backward-looking. Interviewees describe the extensive use of reports, dashboards, and diagnostic analytics. Lead users of retail analytics, most argued, include digital natives ("firms that design for data") and platforms ("firms that benefit from scale"). Our interviewees offered their perspectives on why practices have not adopted more advanced tools. These suggestions could be classified as either a barrier to or an enabler of the successful use of advanced retail analytics and grouped by culture, organization, people, processes, systems, and data. For instance, risk aversion ("the benefits are not clear, but the costs are") and inertia ("we always managed without") were quoted as cultural obstacles.

On the other hand, a data analytics champion in the C-suite was seen as an important enabler. In terms of organization, a hub (central organ coordinating all analytics efforts) and spoke (embedding analysts in the business function) seems optimal to make things work. A lack of analytics talent was seen as one of the biggest blocking factors. We are therefore proud that our current MScBA Business Analytics & Program at RSM is in its second installment, further growing to 120 students next year. This master will provide the connectors with knowledge of the business and well-versed in analytics that our participants are so desperately seeking. In terms of processes companies on the frontier of analytics have adopted some form of the "think big, start small, scale fast" mindset, which involves a substantial amount of decentral experimentation and rapid scaling of successful MVPs to the organisation level. Legacy systems stand in the way of successful analytics usage, more and more our participants are looking to redesign their systems using custom-built solutions. Finally, proper master data management (data lakes) and coordinated pre-processing of data are required on the data front.

SharehouseLab; Data driven facility lay-out optimization

Expert Practice: *Retail Analytics*

Researchers Prof Rene de Koster, Professor of Operations Management at Rotterdam School of Management, Erasmus University , Debjit Roy, Associate Professor of Operations Management at Rotterdam School of Management, Erasmus University and Mahdi Ghorashi, Ph.D. Candidate at Rotterdam School of Management, Erasmus University collaborate in the SharehouseLab initiative. Their research focuses on Data-driven Facility Layout Optimization, based on real time data captured by the internet of things network. Their main research challenge questions how data-driven optimization of layouts can be leveraged to reduce worker travel times. Insight achieved on the dynamics of a real-world system that is obtained via this data acquisition can be used to enhance the efficiency of the system under the study.

Mathew Joseph Emerging Scholar Award (AMA)

Expert Practice: *Psychology of AI*

Gizem Yalcin, a PhD student in marketing supervised by Prof. Stefano Puntoni and Dr. Anne Klesse, won the Mathew Joseph Emerging Scholar Award, by the American Marketing Association and received an Honorable Mention at the Psychology of Technology Dissertation Award. She will defend her PhD this spring and start as Assistant Professor of Marketing at the University of Texas at Austin in the summer. **Read more >**

Science Communication Grant (KNAW) and Case Centre's Marketing Case Award

Expert Practice: *Psychology of AI*

Prof. Stefano Puntoni won a Science Communication Grant by the Royal Dutch Academy of Sciences (KNAW) and the Case Centre's Marketing Case Award, for the best-selling case in marketing. This was for the TomTom case, where we discuss topics such as the future of autonomous driving, how to compete with Big Tech companies, and how to develop brands over time. **Read more >**

Open Science ERIM Award for publication of R/Python packages

Expert Practice: *Customer Analytics*

Dr. Aurélie Lemmens, Associate Professor in the department of Marketing Management at the Rotter-

dam School of Management was presented with the ERIM (Erasmus Research Institute of Management) Open Science Award 2021 for her commitment to promoting open science among her peers and the publication of R/Python packages. The jury stated: "This year's winner of the ERIM Open Science Award demonstrates that it is possible to embrace the principles of openness and transparency in fields of research where such conversations are not mainstream." **Read more >**

Article on Morphing Algorithms accepted at Marketing Science

Expert Practice: *Trial Design and Experimentation*

An article by Prof. Gui Liberali and Dr. Alina Ferecatu on Morphing algorithms has been accepted by Marketing science. Websites are created to help visitors take some action, such as making a purchase or a donation, filing their tax returns, opening a bank account, or adhering to a cause. Yet, websites do not change within a visit, regardless of where the visitor stands with respect to the action. As visitors click on various web pages, they may make rapid steps towards the action, such as moving along the purchase funnel. Websites that can adapt to match such consumer dynamics perform better. However, assessing visitors' changing distance to the action, at each click, and adapting to it in real-time is challenging because of the sheer number of design elements that are found in websites that combine exponentially. Prof. Gui Liberali and Dr. Alina Ferecatu developed a novel real-time scalable algorithm that solves this problem. They provided a proof-of-concept of the algorithm in two applications. First, in a field study on the MBA website of a major university. Secondly, the algorithm was implemented on a cloud server and tested on an experimental online store. **Read more on ecda.eur.nl >**

SharehouseLab; Virtual Reality experiments and the impact on safety and productivity

Expert Practice: *Virtual and Augmented Reality*

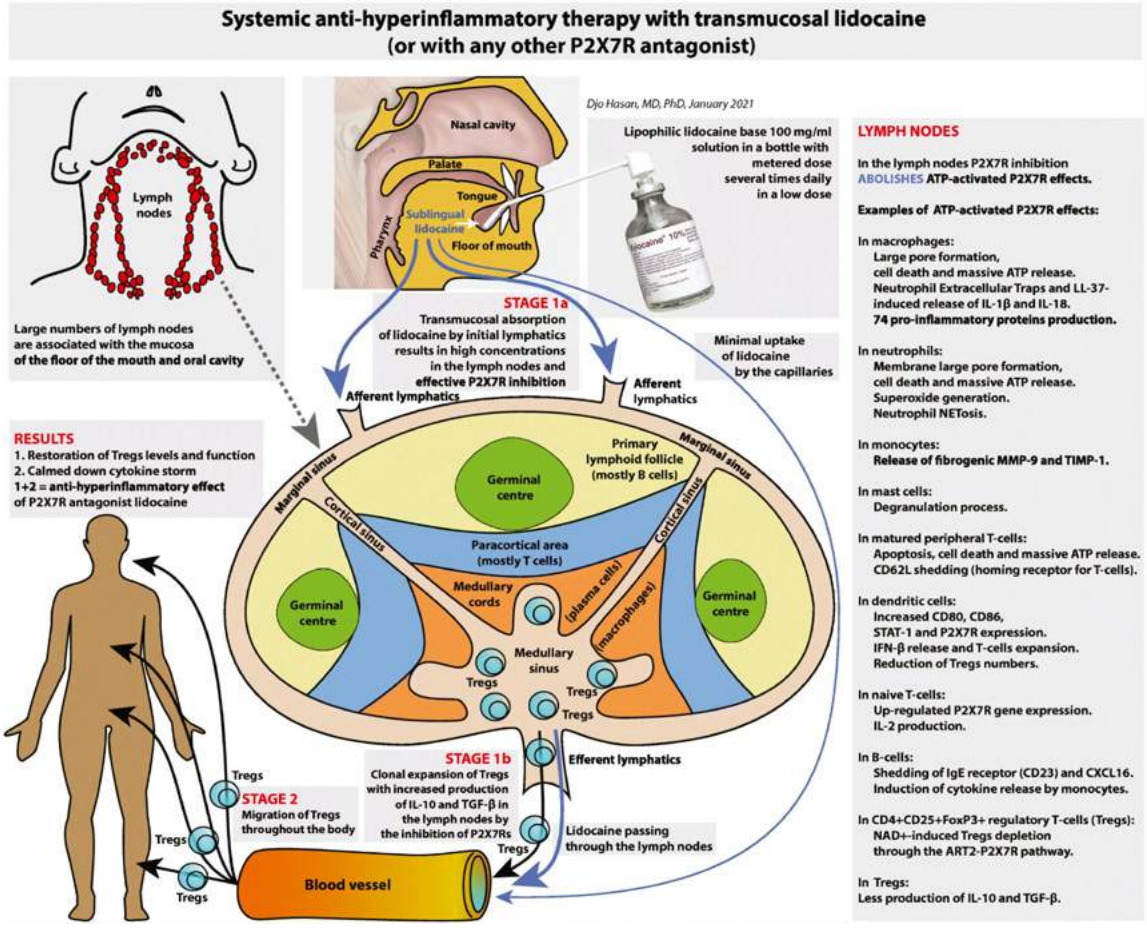
Researchers Mahsa Alirezaei, Ph.D. Candidate at Rotterdam School of Management, Erasmus University, Dr. Jelle de Vries, Assistant Professor of Operations Management at Rotterdam School of Management, Erasmus University and Prof. Rene de Koster, Professor of logistics and operations management at Rotterdam School of Management, Erasmus University conduct Virtual Reality experiments studying the impact of feedback on safety and productivity in warehouse driving, as part of the Sharehouse initiative. In this study, they will explore whether people with different individual characteristics react differently to the audio feedback. The experiments focus on the question of whether you can simply use technology, a robot, VR glasses or do you have to look for an optimal way of cooperation between humans and machines, taking human behavior into account? The first experiments showed that the use of VR glasses presents many challenges. It's realistic but also strange. Such VR experiences may lead to strange movements and some make users nauseous. In the continuation of the experiment, the researchers will therefore also measure the stress in test subjects, for example with a heart rate monitor. **Read more >**

Collaboration with 2Tokens foundation on blockchain-based tokens

Expert Practice: *FinTech*

On behalf of ECDA, Dr. Dion Bongaerts started working together with the 2Tokens foundation on knowledge production and dissemination regarding the business use of blockchain-based tokens. Blockchains provide a technology to administer value transfers in an immutable and decentralised way. Essentially, these blockchains serve as transaction ledgers. One can create transaction ledgers for crypto currencies on blockchains, but also for custom-made tokens or crypto coins, that for example represent securities or ownership certificates of physical or digital assets. The foundation has also set up a roadmap to help guide businesses through the practical and regulatory process of adopting blockchain-based tokens. In his work for the 2Tokens foundation, Dr. Dion Bongaerts advises the foundation board on potential applications for such tokens and a further strengthening in the development of the roadmap to help set out the research agenda for the coming years. Moreover, he contributes to several knowledge-exchange events and use-case studies that analyse the feasibility and business potential to use tokens for raising start-up financing, making accounts receivables (invoices to be received) tradable, facilitating fractional ownership of energy production assets such as solar parks or windmills, and creating a euro-equivalent token, either issued by a central bank or a private party.

Read more >



Example of novel definition and treatment of hyperinflammation in COVID-19 based on purinergic signaling

Investigation into the ethical use of algorithms, in collaboration with Rekenkamer Rotterdam

Expert Practice: *Trustworthy & Accountable*

Accelerations in the field of machine learning resulted in the deployment of cutting-edge algorithms that increasingly support or even replace humans in the decision-making processes of organisations. Despite their benefits, algorithms used by public organisations have a significant impact on citizens and raise ethical concerns. In this project MSc Ron Koppers (internship and master student), Dr. Otto Koppius (master thesis coach) and Dr. Iuliana Sandu (master thesis co-reader) investigated the potential to mitigate the ethical risks of algorithms in an in-depth single case study of an algorithm used by a Dutch municipality to calculate risk scores for potential unlawfulness of unemployment benefit recipients.
Read more >

Open access Covid-19 datasets have been prepared for teaching in the Erasmus Data Collaboratory

Expert Practice: *Bioinformatics Expert Practice*

ErasmusMC dept of Bioinformatics values the ECDA collaboration for joint development of analysis strategies for healthcare data. Molecular pathology experiences annual growth of digitalisation due to increased volumes of imaging and molecular techniques used for medical diagnostics. In the context of Covid-19 open access Covid-19 datasets have been prepared for teaching in ECDA's data collaboratory.

5/ Compilation of 2021 ECDA Activities

January

- **Master course Algorithms in Control**
  The course Algorithms in Control was launched by Dr. Iuliana Sandu in the master's program Business Analytics & Management. Being the first of its kind, the course investigates how algorithms used by organisations can be controlled. As such, it zooms in through a control lens on risk areas of algorithms such as bias, discrimination, opacity, and lack of accountability. The course uses a discussion-based approach, acting as a learning activity that deepens understanding by allowing several points of view to contrast and emerge. **Read more >**

- **Collaboration with network of Universities of Applied Sciences on Responsible Applied AI**
  The Amsterdam, Rotterdam and Utrecht Universities of Applied Sciences have received a SPRONG grant from Regieorgaan-SIA, with which they – together with 24 partners from the field – can build an infrastructure for a powerful research group. A group that is regionally and nationally recognised as the centre for practice-based research in the field of Responsible Applied AI. ECDA is involved through efforts by Dr. Iuliana Sandu and Dr. Marcel van Oosterhout, as a network partner, and will co-organise workshops and events with the involved partners, share expertise and enable a wider application and use of products developed in the context of the programme
  Read more >

- **Final pitch event, leadership challenge with data analytics**
  This edition of ECDA's team training programme had two winning teams: ING Spain and Erasmus University Rotterdam. The ING team worked on a Know Your Customer case using advanced analytics techniques to identify Financial Economic Crime in transactional client data while abiding by ethical guidelines and GDPR requirements. The EUR team worked on a use case to demonstrate its societal impact using the UN Sustainable Development Goals (SDG's) as a guiding framework with an interactive dashboard as main outcome.

- **Urban Data Platforms webinar**
  The focus was on using urban data in cities for the green transition. In this webinar Dr. Marcel van Oosterhout presented the key lessons from an ECDA study on urban data platforms across Europe. Other speakers shared four best-case examples to inspire participants. The session was organized in collaboration with ICLEI, and Local Governments for Sustainability. **Read more >**

March

- **Keynote for Citywire Sustainability Forum 2021 by User experience (UX) research and global tech design expert practice**
  Prof. Payal Arora delivered a keynote on ethical AI, inclusive design, and UX within low-income communities for investment companies exploring trends and activity in sustainable investing. As the market continues to expand with a wider range of solutions and with growing demand from clients to back this up, the forum is designed to help deliver the best possible portfolios. **Read more >**

- **Digital Governance (DIGOV) workshop**
  In a two-day fully online workshop, policies and practice were assessed for their suitability to cope with the social, economic and ethical challenges of the digital transformation through AI and Big Data. The workshop comprised of keynote lectures by prominent academicians and politicians. Prof. Heine and Prof. Stamhuis took a major part in the content and the organization of the workshop.
  Read more >

- **Digital City Rotterdam community event**
  A discussion and knowledge exchange on the development of open urban data platforms.

April

- **INFORMS Innovative Applications in Analytics Award**
  Dr. Debjit Roy, associate Professor of Logistics and Operations Management at Rotterdam School of

Data Analytics Summer School

Management, Erasmus University won the prestigious INFORMS Innovative Applications in Analytics Award for work on Optimizing Packaging in E-Commerce. **Read more >**

- **Research Grant from the Marketing Science Institute and the Center for Operational Excellence in Retailing**
  Dr. Robert Rooderkerk (together with Ayşe Çetinel and Gürhan Kök from Koç University) recieved a $9,000 grant from the Marketing Science Institute and the Center for Operational Excellence in Retailing for their research on "The Value of Experience-Centric Stores" which set out to investigate the value of opening experience-centric stores for retailers operating under an omnichannel business model.

- **TechDate Celonis**
  ECDA's first TechDate session was held with Celonis. Guest speaker, Josephine Hubert, explored the fundamentals of Process Mining Technology and introduced possible use cases for Education & Research through the platforms of Celonis to our participants. **Read more >**

May

- **TechDates Snowflake**
  Snowflake representatives, Niels ter Keurs and Floris Van Den Boom, introduced Snowflake and its data cloud management services, which is a platform for creating datasets by combining both internal and external sources. Data clouds allow organisations to immediately access the data ecosystem shared by thousands of organisations. **Read more >**

June

- **Boardroom workshop with board of Innovation Quarter**
  ECDA organized a workshop on the impact of AI for the South Holland Innovation ecosystem and implications for Innovation Quarter.

- **Workshop City of Rotterdam and BMW**
  Several workshops between the City of Rotterdam and BMW were hosted by ECDA and Erasmus UPT, to kick-start a longer-term research collaboration within the context of several pilot projects focusing on sustainable (electric) mobility, safety, and air quality. .

- **TechDate DataRobot**
  Dr. William Disch led a webinar about Automated Machine learning in partnership with DataRobot. He introduced the topic and explained how DataRobot is used in academia and the opportunities it provides.

- **Release of Massive Open Online Course on Digital Governance (MOOC)**
  This Massive Open Online Course (MOOC) on Digital Governance confronts students via lectures, interviews, studio discussions, assignments and peer reviews with the variety of challenges that digitalization creates for society (e.g., Big Data, Artificial Intelligence, Internet of Things, Social Media).

The course discusses how established concepts as competition, property, privacy, democracy may have to adapt to the disruptions created by digitalization. ECDA academic directors Prof. Heine and Prof. Stamhuis took a major part in the release of MOOC. **Read more >**

July

- **Data Analytics Summer School**
  In collaboration with the Erasmus Tech Community, Erasmus Centre for Data Analytics organised its yearly Data Analytics Summer School. A week of workshops and various programs resulted in the delivery of creative and well-structured presentations by the participant teams. ECDA, ETC, and our partners would like to officially congratulate the winning team who presented the most impressive ideas. We would like to thank Just Eat Takeaway and Amazon Web Services who as event partners provided the Summer School with interesting cases and support throughout. **Read more >**

- **Final Pitch Day Leadership Challenge with Data Analytics**
  Final Pitch Day for participants in the leadership challenge with data analytics programme The winning team in this edition was: the City of the Hague. Their case focused on increasing 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.

- **Erasmus Data Summit**
  The Erasmus Data Summit provides a platform for corporations, academia, and public institutions to discuss challenges and solutions. In just one afternoon, expert practitioners, academics, and thinkers present examples and use cases from their own fields to show a range of perspectives. For the audience, it offers a comprehensive understanding of today's challenges for control of data and AI. This edition answered the question: "who is in control of data?" **Read more >**

September

- **Incorporation of the Crowdfunding Lab**
  The Crowdfunding Lab led by Thomas Lambert and Magdalena Cholakova is an inter-disciplinary community of RSM-based researchers that look at crowdfunding markets. This sub of the FinTech expert practice organises regular meetings for networking and the exchange of research practices and outcomes. **Read more >**

- **Research Grant on 'Decentralized Exchanges'**
  Dr. Thomas Lambert, Prof. Peter Roosenboom and part-time PhD student Daniel Liebau have been awarded with a research grant on 'Decentralized

Debate 'Fast-Forward Digital' & Valedictory of Peter Vervest

Exchanges' from the FinTech Chair at Paris-Dauphine University. **Read more >**

- **Recharge Earth Conference and Expo**
  ECDA is part of the programme committee and helped to design a successful first edition of this platform event that brings together public, private, academia, and students to accelerate the energy transition. Specific contributions were made in different breakout sessions and an innovation perspective was brought to the plenary programme. A collaboration took place at a student hackathon to solve some challenges by groups of students from Hogeschool Rotterdam, Erasmus University Rotterdam and TU Delft. **Read more >**

- **Debate 'Fast-Forward Digital' & Valedictory of Peter Vervest**
  At the beginning of the digital age 30 years ago, Peter Vervest, Professor of Information Management and Networks, joined Rotterdam School of Management, Erasmus University (RSM) as a faculty member. To celebrate the professor's career milestone and retirement, RSM hosted a valedictory event to take a deeper look at the roles that universities should play in being digital leaders and how students can be equipped to learn with new technologies. The event, on 24 September, began with a debate and the official opening of a new facility for the university: the new Erasmus Data Collaboratory. The opening preceded Professor Vervest's farewell lecture, Fast-Forward Digital: A new kind of university. Under the then COVID guidelines, the event in the Aula of Erasmus University was attended by 75 guests as well as almost 8000 online participants. **Read more >**

- **Smart Energy Seminars: Hydrogen in existing energy systems**
  Erasmus Centre for Data Analytics (ECDA) and Clean Tech Delta (CTD) presented the fourth edition of the smart energy seminar series. In this edition the focus was on the challenges surrounding implementation of hydrogen into existing energy systems. The seminar series provided a platform for the research, public, and private sector to discuss economic, social, and technological issues around Energy Decarbonisation, Decentralisation and Digitisation (E3D). **Read more >**

October

- **ECDA XP Spotlight Digital Business**
  Part of the ECDA Insight series, this edition focused on the Digital Business expert practice around AI use in businesses. Concretely, this event was held by ECDA in close collaboration with Dutch AI startup, Digital Sundai and Kenniscentrum Business Innovation (KcBI) of Hogeschool Rotterdam. The background of the workshop involved a survey analysis that was executed with support from the Dutch NLAIC coalition among 40 managers. The survey was conducted between March through May 2021, followed by interviews with advanced users of AI. A whitepaper with the key findings shares the main insights from the study. **Read more >**

- **Boardroom workshop with board of Innovation Quarter**
  A discussion on the role and impact of AI for the South Holland Innovation ecosystem, with a focus on: what can we learn from the Chinese innovation ecosystem?

- **Launch of Data Analytics Academy for finance professionals of Yacht**
  This program is a collaboration between ECDA and RSM BV.

- **Kick-off EU MAGPIE (sMart Green Ports) project**
  ECDA and Erasmus UPT play a substantial role in a project that has been awarded nearly € 25 million in EU funding. The project will improve the sustainability of ports in the European Union. In total 45 organisations are collaborating in an international alliance working on a Horizon2020 project under the Green Deal Call to boost the green and digital transition. The project, led by the Port of Rotterdam, kicked off in October 2021 and will run for five years. **Read more >**

- **TechDates– IBM: AI for academia and OpenDS4All**
  The purpose of these monthly events is to introduce our academic community to the leading companies in the data analytics field for research and education. The theme of this event was AI for Academia and is organised in partnership with IBM. The speakers at the event were Andre de Waal and Benjamin Timmermans. They started with an Introduction to Global Programs and IBM's support for academia and then showed us OpenDS4All's use in academia.

2021

- **Contribution in webinar EWRC: Digital for the People - it's more than tech**
  This webinar was organised in the context of the EU Regions Week. A contribution was made by Dr. Marcel van Oosterhout on the role of non-technological and social dimensions of making digital innovation work in an urban context.

- **Contribution in session for Chambre of Commerce Limburg, Belgium**
  A contribution in the knowledge session for the Chambre of Commerce Limburg, Belgium was made by providing insights from the Rotterdam innovation ecosystem for digital transformation.

- **Digital City Rotterdam community event**
  A Discussion and knowledge exchange on the results from the Erasmus University master students programme on digital city challenges.

- **Grand Opening Erasmus Data Collaboratory**
  As part of the Convergence Alliance between TU Delft, Erasmus MC and Erasmus University, the Erasmus Data Collaboratory will be an inclusive open-learning hub for data and AI on the Erasmus University campus. Operated by the Erasmus Centre for Data Analytics, the Collaboratory will offer students, academics, public and private partners a dedicated facility to think, work, learn together. It will also serve as a space to innovate within areas such as energy transition, resilient deltas, health systems, and creating smart and inclusive cities.

  During the opening several demonstrations took place. In the **Snowflake Room** a demonstration was provided on Snowflake's capabilities. In the **VR Owl Room** a brainstorming session focused on opportunities for using VR and AR, while participants could try out VR headsets. In the **Optecs Room** students worked in an interactive session on a case based on AI technology. In the **boardroom** Professor Peter van der Spek of Erasmus MC gave a presentation on Generation R and Virtual Reality. Data was collected on 15,000 children born in Rotterdam who are now approaching adulthood. During the talk, the VR techniques used to investigate the Generation R Next ultrasound scans were presented.
  Read more >

Grand Opening Erasmus Data Collaboratory


Erasmus Data
Collaborato

2021

Dr. Marcel van Oosterhout presenting at Dutch mission to smart city expo Barcelona

November

- **Keynote for COP26 Design for Planet Festival Scotland: Green design for the next billion users**
  Prof. Payal Arora delivered a keynote on the sustainability of AI-driven technologies and how to build inclusive online futures taking into account planetary and social needs. This talk was for a landmark festival to galvanise and support the UK's design industry to commit to a sustainable, climate-first future. This two-day event provided a platform for visionaries across the sector who are leading the way in sustainability and climate action, and support others in the industry to prioritise the welfare of our planet in their work. Design for Planet welcomed over 100 invited experts and was live streamed to thousands of online participants. **Read more >**

- **Participation in Dutch Mission to Smart City Expo**
  ECDA shared insights on its research into smart cities and urban data platforms, a topic that all major cities worldwide are working on. **Read more >**

December

- **Invited participation at Science|Business, a major European think tank on AI around the theme: What real-time data means for AI**
  As the cost of connectivity and computing power falls, it is becoming feasible for organisations and individuals to continually monitor their assets, their performance, and their health in near real-time. Prof. Gui Liberali from the Trial Design and Experimentation expert practice took part in a Science|Business online webinar/workshop focusing on:
  1. How will the rise of real-time data generated by the Internet of Things, edge computing, and 5G impact artificial intelligence?
  2. What are the ramifications of this growing resource for research and innovation?
  3. To what extent are real-time data flows enabling the creation of digital twins – very detailed and up-to-date models of real-world assets and environments?
  4. Do we have the right regulatory and policy frameworks in place to govern the use of real-time data?
  5. How will the EU's new data spaces enable real-time data to be widely harnessed in a safe and judicious manner. **Read more >**

- **Moonshot Thinking event with Nick Hillhorst (Uber)**
  A collaboration between the BIM group (department Technology and Operations Management, part of Rotterdam School of Management, Erasmus University department) and ECDA launches monthly Moonshot Thinking events, bringing thought-leaders in their respective industry sectors with a unique story to tell – whether that is a ground-breaking technology they are working on, an idea they believe in, or an innovation that will reshape the world as we know it. The purpose of these events is to bridge academia and practice and open up opportunities for research collaboration & idea exchange. This first edition's guest speaker was **Nick Hilhorst, Head of Public Policy Northern Europe at Uber**. He talked about Uber's moonshot ideas, how they imagine mobility in the cities and how one of the biggest tech companies in the world handles regulatory challenges as they try to roll out their disruptive technology across the globe. **Read more >**

- **Workshop Between Competition and Regulation: Taming Online Platforms and Intermediaries**
  This high-profile workshop at the University of Leeds involved a keynote from the Director-General for Competition (European Commission), Olivier Guersent, and panels with renowned scholars and policymakers. The event was organized by Prof. Pinar Akman and Dr. Konstantinos Stylianou from the University of Leeds. They are the director and senior fellow at the Jean Monnet Centre of Excellence on Digital Governance (www.digov.eu) and experts in the field of competition policy. Prof. Klaus Heine and Prof. Evert Stamhuis both played a role in the workshop as moderators; they are both as well the director and senior fellow at the Jean Monnet Centre of Excellence and directors at ECDA. With this workshop, the Jean Monnet Centre and ECDA showcased their outreach on European competition policy in the field of online platforms, which is a vibrant topic within the EU for the background of the Digital Markets Act and the Digital Services Act.

- **City of the Hague joins ECDA as full partner**
  The Erasmus Centre for Data Analytics welcomed a new full member to its ecosystem of public and private stakeholders, the city of The Hague: city of peace and justice. As part of the signed collaboration with ECDA, the municipality of The Hague will continue to participate in the leadership challenge programme, to spread a data-driven way of working and thinking among the organisation. Practices will be shared with other partners in ECDA's ecosystem and joined research projects will be developed and intensified with several of ECDA's expert practices in the context of the strategic convergence programme Resilient Delta. The ECDA, City of Rotterdam and municipality of The Hague will also join forces in the recently launched collaboration platform 'Grenzeloos Datalandschap', together with the Province of South-Holland. Finally, collaboration within the context of the Dutch AI coalition's programme on AI for Peace, Justice and Security will be an important building block for the collaboration with the municipality of The Hague – as part of the convergence programme on data, AI & digitalisation. **Read more >**

- **Master students applying methods that prevent discrimination within deep learning-based targeting models**
  Research Master student from the Business Data Science program started working on methods that prevent discrimination within deep learning-based targeting models. This will immensely improve the quality and fairness of many personalisation systems.

- **Participation in 2021 Annual KÜMPEM Forum Retail Conference organised by Koç University**
  Dr. Robert Rooderkerk and Prof. René de Koster, from the retail analytics expert practice, spoke at this conference, which brought together several hundreds of retail practitioners from the region. Robert talked about the evolution of retailers towards more advanced analytics, René discussed research on cobotic (human + robot) order picking in warehousing. **Read more >**

- **Presentation at Coolblue**
  Dr. Robert Rooderkerk gave a presentation to analysts at Coolblue on advancing retail analytics. He discussed different types of analytics, illustrated them with examples from academic research, discussed how to make analytics work in practice versus the obstacles one can encounter, and provided examples of companies on the frothier of analytics.

6/ The Erasmus Data Collaboratory

We are proud that on October 29th we celebrated a festive opening of the Erasmus Data Collaboratory in the Polak building on the Erasmus University Rotterdam campus together with our partners. The Collaboratory, created by merging "Collaboration" and "Laboratory", is a central hub where our students, academics, and public and private partners can come together to work on their data and AI-related challenges, using state-of-the-art technology. Within the Data Collaboratory, the focus is on building both a technical and a social understanding of AI.

The Erasmus Data Collaboratory is an inclusive open learning environment for data and AI on campus at Erasmus University Rotterdam, where people can think, work, invent and learn together. This physical hub has facilities for hands-on action learning, action research, experimentation, and valorisation, and it enables the complete data science cycle, from data engineering to data analysis and including data visualization.

Previously, ECDA partnered with leading tech companies and start-ups that offer cloud infrastructure for data and AI with access to specific data sets and algorithms, and the use of advanced tools for AI and machine learning, process mining and visualization. This space is where students from the Erasmus Tech Community and Turing Students Rotterdam can plan and execute their activities, and where ECDA's corporate partners meet to learn, share, and research collaboratively.

Creating positive societal impact

One of the primary aims is to foster collective creativity to create societal impact. It brings together students, academics, public and private partners, and start-ups and scale-ups. They work on the energy transition, resilient deltas, health systems, and creating smart and inclusive cities. These issues are usually complex and hard to resolve, demanding approaches that are creative, systemic, and divergent. Every design challenge will involve highly experienced and expert facilitators.

A lab environment for hands-on training and in-depth research

Operating as a lab environment for the Expert Practices of ECDA, it will also be the place for hands-on training, where students from different education programmes and backgrounds can work with real datasets and data analytics, AI, and ML tools. ›››

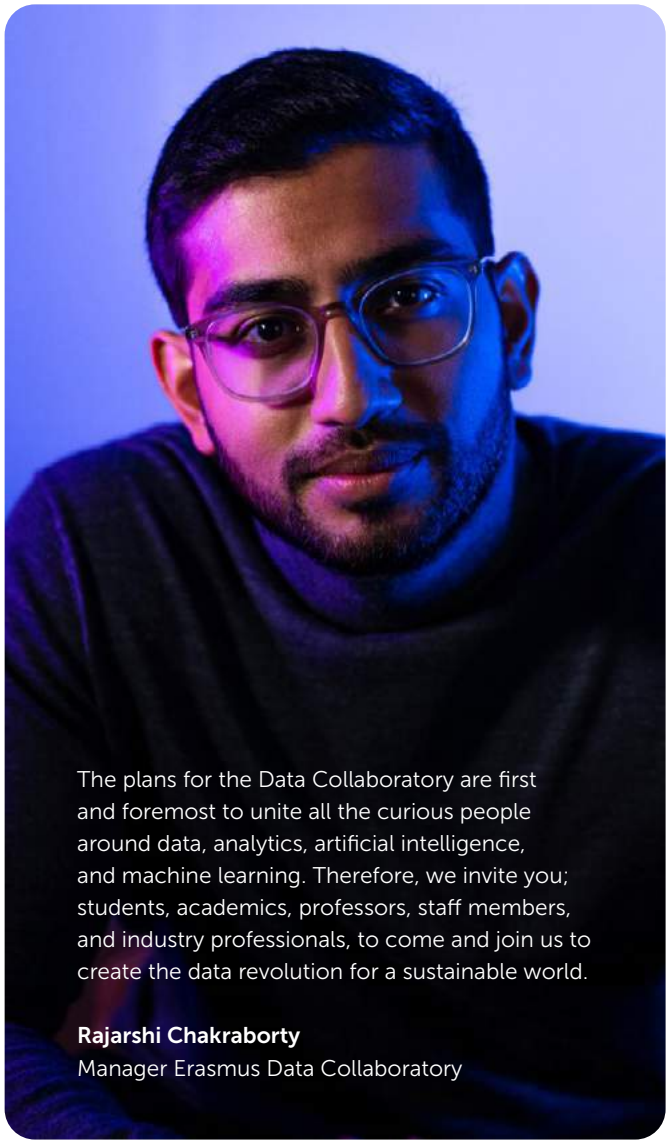
"The Place where Data comes to Live"

Responsible Data Management

Responsible data management (RDM) is an integral element, with advice and support from the university's data stewards for researchers throughout the research data life cycle, in accordance with international RDM standards and FAIR principles. Researchers are helped with General Data Protection Regulations (GDPR) by the EUR privacy officer so that research infrastructure data, software codes, research material, and corresponding metadata can be shared safely and stored securely. These measures facilitate collaboration in international consortia. ECDA ensures that collaboration and data-sharing with its partners are compliant with legal provisions and codes.

> Our activities in data, data analytics, and AI now have a location: the Erasmus Data Collaboratory. I think we are living in a world where data and artificial intelligence are technologies that are very important.

Ed Brinksma
President of the Erasmus University Rotterdam



The plans for the Data Collaboratory are first and foremost to unite all the curious people around data, analytics, artificial intelligence, and machine learning. Therefore, we invite you; students, academics, professors, staff members, and industry professionals, to come and join us to create the data revolution for a sustainable world.

Rajarshi Chakraborty
Manager Erasmus Data Collaboratory

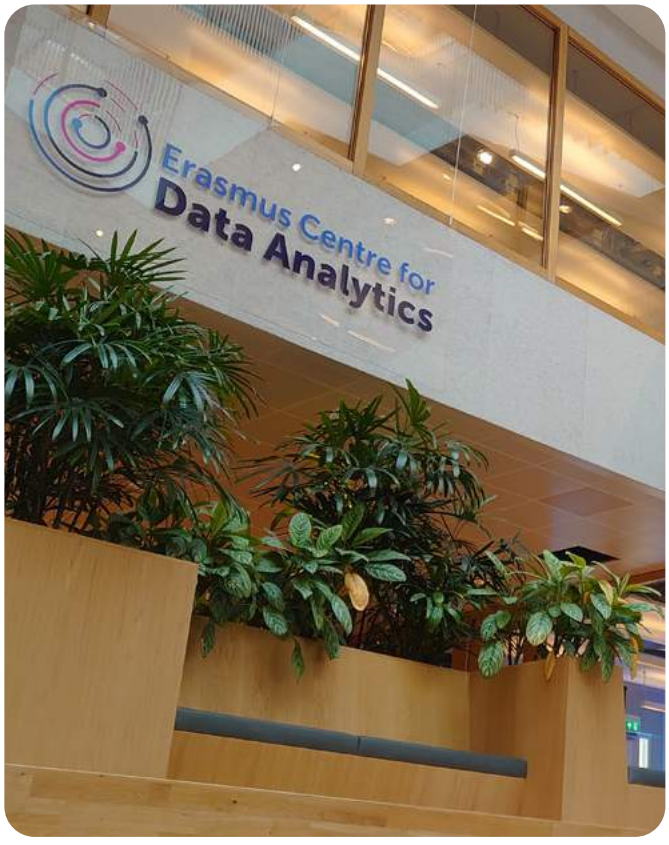
Hub on campus at Erasmus University Rotterdam

The physical space for the Erasmus Data Collaboratory and the technology stack includes:

- a data lab, equipped with high-quality workstations with high-resolution displays, connected to a cloud infrastructure with fast connections.
- a visualization space, with advanced digital projection facilities

> Establishing the Erasmus Centre for Data Analytics was only half of the way. The second half was creating a physical space, where people can meet and work together on improving society with data and AI. The opening of the Data Collaboratory is a huge step toward the university of the future.

Gerrit Schipper
Managing Director ECDA



- a multimedia-equipped boardroom
- well-equipped project and meeting rooms, that will be equipped with creative and stimulating tools to support research and education.

This year will bring the Data Collaboratory into the next phase; with better technology we want to create a sandbox environment for our stakeholders to experiment, stimulating proof of value and driving innovations. Currently, we are looking for additional funding to accelerate implementations.

> Having a Data Collaboratory is key to embedding the necessary methods and teaching students how to use these methods on their open access data tables and data sets.

Peter Van der Spek
Academic Director ECDA

"Being part of the ecosystem of ECDA means a lot"

Rob Zuidwijk

7/ Fireside chats on the use of MAGPIE

Rob Zuidwijk is a professor of Global Supply Chains and Ports at Rotterdam School of Management, Erasmus University (RSM), and one of the first academic directors that established an ECDA Expert Practice. Additionally, Professor Zuidwijk makes a significant contribution to Smartport, a strong research community in port-related research for which RSM and EUR are two of the main stakeholders. He is also Captain of Science of the Topsector Logistics in the Netherlands. Here, we reflect on the conversation he had with Gerrit Schipper, executive director of ECDA, discussing how ECDA can be instrumental in MAGPIE, one of Rob's latest projects.

Rob Zuidwijk & Gerrit Schipper about MAGPIE and the port of Rotterdam

Gerrit opens the conversation with "Rob, before we start talking about 'MAGPIE', can you tell me a little more about the Expert Practice 'Sustainable Global Supply Chains and Ports' and why being part of ECDA is so valuable?"

"Certainly," Rob replies "In our Expert Practice, we focus on sustainable development and management of global supply chains and ports. The acquisition and sharing of data among various organizations and its use in advanced information services play a central role. Our academic activities, often with the involvement of public and private parties, include but are not limited to the application of data analytics and AI in port logistics and sustainability efforts in global supply chains." He continued: "Being part of the ecosystem of ECDA means a lot. On the one hand, it gives us a great opportunity to collaborate with the 20 or so other Expert Practices in a transdisciplinary fashion, and on the other hand, it gives us easier access to the public and private partner organisations ECDA has in its ecosystem. Let's not forget that working together on European calls has already been quite successful. I think the European RUGGEDISED programme, to which you as ECDA make a very important contribution, is a very good example of this."

Can Rob give some examples of ongoing projects? Rob mentions 'PLANET', 'CATALYST', and 'STAD'. He adds:" 'PLANET' is a project where we focus on accelerating the collaborative transition towards the Physical Internet in the context of new emerging trade routes. This is a very actual topic. 'CATALYST' and 'STAD' are projects with a focus on automated driving and transport. These projects are a great example too of collaborating with many public and private organisations." »»

Gerrit continues, “Now let’s talk about MAGPIE. What is so special about this project and where does MAGPIE stand for?”

Rob enthusiastically replies, “MAGPIE is a large European Horizon Europe project where the Port of Rotterdam is taking the lead. It is very inspiring to be involved in a project in which so many bold steps are made toward a sustainable smart port. This gives rise to many interesting research questions.” He continues to say, “and, MAGPIE is not referring to the bird it is rather an acronym meaning sMArt Green Ports as Integrated Efficient multimodal hubs.”

“And what are the key takeaways, learnings, partnerships or highlights of last year?” Gerrit asked.

Rob takes a moment to pause and says: “To be honest, our contributions to the project are in their initial phase. For example, we are involved in the exciting question of how automated barges will be deployed in the port context. Experiments will be done with a real barge, with model barges in the laboratory, and with computer models. At RSM, we focus on new logistics concepts that will help completely redefine inland shipping.”

"Ok fair enough," Gerrit replies, "you have just started, but what can we expect for the coming year and years to come?"

"In the project, we are involved in designing logistics for a new generation of ports, deploying electric and automated barges and trucks." Rob continues: "This project will give hands and feet to some of these developments in real demonstrators, supported by cutting edge multidisciplinary research. However, what I would like to know from you is how ECDA can help us in our endeavour?"

Gerrit laughs, "Now you put me on the spot, but it is a valid question. ECDA can for instance help you to connect your work in MAGPIE to the overarching efforts of the universities and the convergence initiatives, both AI, Data and Digitalisation, and Resilient Delta. This way we can synergize your efforts as universities toward our external stakeholders."

"That is exactly what we need," Rob replies. "And we can use the Collaboratory to meet our fellow researchers and projects partners. I am sure MAGPIE will be a huge success and I do think that ECDA can play a pivotal role in this!".

Yashar Ghiassi-Farrokhfal & Marcel van Oosterhout about MAGPIE and a smart energy transition

Yashar Ghiassi-Farrokhfal and Marcel van Oosterhout take over to discuss ECDA's role in studying smart energy in several EU projects, including Ruggedised and MAGPIE. Marcel van Oosterhout is the associate executive director of ECDA. Yashar Ghiassi-Farrokhfal is an associate professor at Rotterdam School of Management, Erasmus University (RSM) and academic director for the ECDA Expert Practice smart energy & sustainability. His research interests are focused on energy systems, electricity markets, storage systems, energy market design and analysis and city-wide energy planning.

Marcel starts the conversation, "Yashar, before we start talking about the different projects, can you tell me a little more about the Expert Practice 'smart energy & sustainability and why being part of ECDA is so valuable?"

"Certainly," Yashar replies. "In our Expert Practice, we combine in-depth expertise of smart cities and communities, sustainable energy, and electric mobility with the role of big data, analytics, blockchain, IoT, and data platforms to help cities and (port)communities and their stakeholders become more sustainable and efficient, whilst exploring new business models based on data, analytics and dynamic tariffing. The dynamism and complexity of energy markets, and the shifting landscape they operate in, requires a broad spectrum of knowledge combined with cutting edge research techniques and technologies using data and analytics." He continues: "Being part of the ecosystem of ECDA means a lot. It gives us a great opportunity to collaborate with experts from other practices, such as behavioral scientists and economists. Next to that, ECDA offers an infrastructure to work with real data sets from markets stakeholders in a secure and safe environment".

Tell us about the connection between data, energy and AI" Marcel continues. "How is this covered in the MAGPIE project?"

Yashar explains: "Within MAGPIE the power of data is harnessed by linking a digital twin of the port with the power of AI to optimise the energy system and the use of renewable energy in connection with an optimised logistics network. In the nearby future with a lot of renewable energy, the port industrial cluster needs to rethink how this energy supply can be matched to the energy needs in the port. Due to the electrification, these energy needs increasingly will require electricity. The opportunity to convert renewable electricity into green hydrogen is part of the puzzle to keep the overall energy system balanced. This gives rise to many interesting research questions, such as willingness to share data, algorithms for prediction and matching and also new business models which are needed. All these topics will be explored in the coming 4 years in the MAGPIE project." ›››

"And what are the learnings, of previous EU projects that you will incorporate into the MAGPIE project?" Marcel asks.

Yashar enthusiastically says: "In Ruggedized project, we analysed the impact of the introduction of electric buses on the electricity grid, and whether batteries are needed as a buffer between the supply of renewable energy from solar panels (on Ahoy) with the need for electricity to power charging of the buses at Zuidplein station. These types of analyses and simulations are extremely helpful to support stakeholders in their investment decisions. In the Flexus project, we focused on the heat energy transition of European cities and in particular Copenhagen as a representative one. We have developed a decision support system for city planners which helps them plan for heat energy decarbonization at individual and district levels. We learned that district heating is a great solution, but it is not possible everywhere and even if possible, it takes a while to be implemented after commissioned. Therefore, it is vital to steer individuals without district heating possibilities to choose green technology options. This needs smart use of data, as proposed in our decision support system. It is important to note that such analysis can be also used to align consumer behaviour and furthermore gain insights into the underlying regulations and taxation".

"That's a clear message" Marcel replies. "What can we expect next in the context of your Expert Practice?

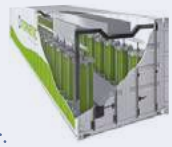
Yashar continues: "Energy digitalization is in its initial phases. While data collection in energy systems has started for a while, the smart use of data is still young. Without properly using data, digitalization in the energy transition cannot be much beneficial. Therefore, my research focus will be more on the role of data analysis for different applications in the energy transition in the coming years. This can enable system integration and electrification and co-design of energy systems to reach our sustainability targets".

MAGPIE Smart Energy Matching Framework

Energy Supply
renewable energy

Energy Demand
(autonomous) transport (& storage)

Balancing & Conversion



storage

hydrogen production

chemical industry & refineries

Energy Matching

Port Digital Twin

Energy Trading

biomass, biogas & waste

terminals & equipment

gas & coal

charging infrastructure

steam & heat

city smart grid

8/ Fireside chat about big data in healthcare

Anne Marie Weggelaar Jansen & Gerrit Schipper

Anne Marie Weggelaar-Jansen is an associate professor of Change Management and Innovation at Erasmus School of Health Policy and Management (ESHPM) and Academic Director of the ECDA Expert Practice 'Health Management and AI'. Anne Marie was trained as a Registered Nurse and studied Care and Policy at the University of Amsterdam part-time. Anne Marie also has a master's degree in change management (MCM). In 2005 she started her consulting practice advising and leading change, organizational development, and innovation in several care organizations. In recent years she worked in several interim management positions in healthcare. Recently she had a fireside chat with Gerrit Schipper, executive director of ECDA, on Big Data Technologies in the Healthcare sector.

Anne Marie starts the conversation with, "I would like to kick off with a discussion on the main reasons to apply big data technologies in healthcare. For me, the most relevant reason to use data is that we can improve the diagnostic and therapeutic process, for the benefit of patients."

"The most relevant," Gerrit responds, "but surely that is not the only benefit?"

"No definitely not. Simultaneously, we can decrease the workload and work stress of healthcare professionals like physicians and nurses, as the reuse of data will inform them better," Anne Marie replies. Hospitals are increasingly turning to big data to make sense of their operational data. The expected impact of applying Big Data Technologies in healthcare is enormous. According to Healthcare Weekly, the global big data market in the healthcare industry will grow to reach $34.3 billion by the end of 2022, growing at a CAGR of 22.1%.

"You emphasized using data in health care is in particular beneficial for patients, but it looks like healthcare institutions are more focused on using data to improve their operational results, improving the bottom-line results?"

Anne Marie replies, "An improvement in the health of patients – even citizens – also leads to economic growth, which ultimately raises per capita GDP for society," and continues: "Healthcare accounts for 10% of the EU's GDP and the sector is continuously becoming more expensive due to a rapidly aging

population, rising prevalence of chronic diseases and costly care needs because of new medical technology treatments. The burden of healthcare costs on our societies must become better balanced in the next decade."

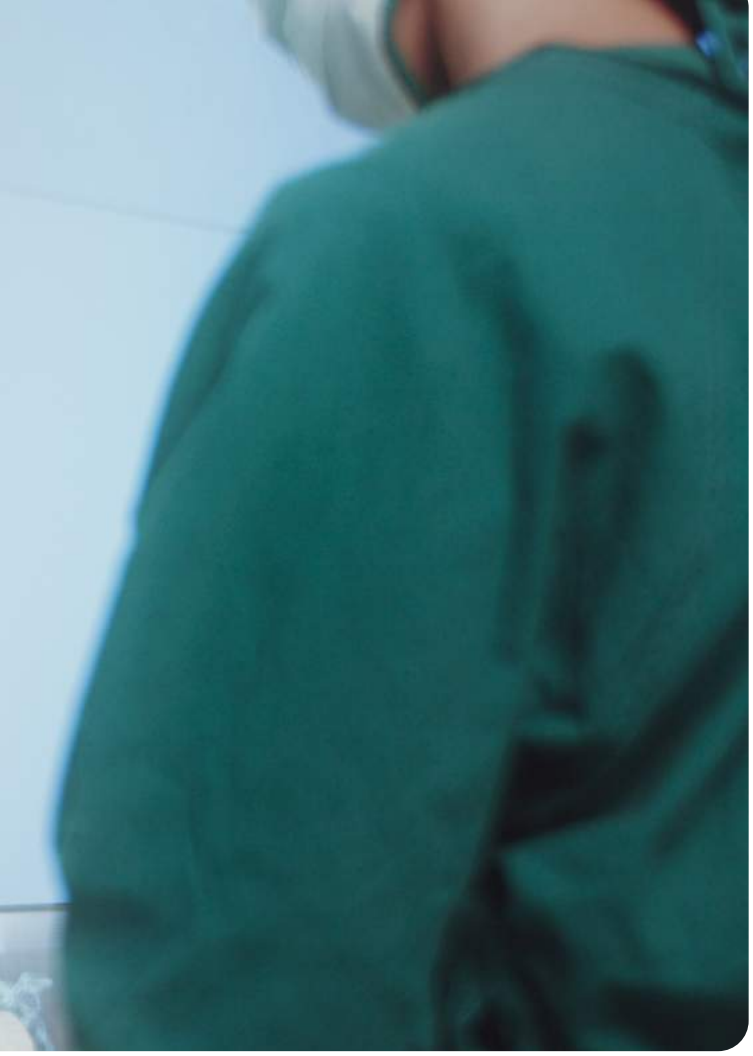
Gerrit asks, "I understood that the EU estimated re-using big data will increase at least 20% the healthcare productivity while maintaining or improving the quality of care provided. That is enormous, but shouldn't we talk about using 'smart data' rather than 'big data? " Gerrit asks.

Healthcare big data refers to the massive amounts of health-related data coming from various sources, such as electronic health records, genomic sequencing, medical research, wearables, and medical imaging, to mention a few. This data is enormous in its volume and diverse in its format, making it difficult to store in conventional databases, and is too complex for traditional data processing technologies. Experts argue that for the healthcare sector, it is more important how "smart" the data is and which type of insights it provides than the volume of data.

In response, Anne Marie asks, "What then do you feel is or could be the value of smart data technologies for the Healthcare sector?".

"You have already mentioned the most important benefits of data in medicine," Gerrit replies: "understanding and improving an organisation's performance; enhancing personnel management; reducing costs obviously; and improving patient outcomes. I would add detecting illnesses at an early stage, creating cures much faster, and understanding better how to prevent illnesses. For that to be successful, it should become much easier to share data between the various stakeholders worldwide. That in itself is already a huge undertaken that requires a lot of research"

Gerrit then asks, "Anne Marie, I assume that you and the other experts of ECDA's expert practice on health management & AI also tackle those challenges. To conclude this conversation, can you, as its Academic Director, tell me a little about that."



> **"Experts argue that for the healthcare sector, it is more important how "smart" the data is and which type of insights it provides than the volume of data"**
>
> Gerrit Schipper

Anne Marie replies, "The Expert Practice leads the transition to a sustainable, empowered and inclusive healthcare system; data-driven but human-centric.". She continues: "The research agenda addresses national and international innovation of care, including the technological, process, service, and product innovations. Hence, the impact of data on healthcare processes and especially the collaboration between healthcare professionals, patients, and data scientists are the focus of research."
Can Anne Marie give some examples of some projects?

Anne Marie mentions 'Big Medilytics', the big-data-for-medical-analytics project, a Horizon2020 project of more than 12 million euros which she recently finished. "Big Medilytics was a huge project involving all the big tech companies of Europe, like Philips, Siemens, DKFI, several universities, and healthcare organizations. In 12 pilots we aimed to increase the productivity of healthcare in diverse domains in 12 countries. One of the objectives was to show in concrete and verifiable terms how healthcare data assets and technologies in Big Medilytics are used as the foundation of the engineering of re-engineering of existing and novel healthcare processes." She continues: "Other projects in which we are working on blending AI in Healthcare sector are for instance 'Consultation room 2030' and 'Data-driven health care ecosystem'."

She then echoes what other Academic Directors have said about being part of the ecosystem of ECDA: "Collaborat[ing] with the other Expert Practices offers a great opportunity to work in a transdisciplinary fashion. ECDA is a perfect platform to bring the various experts of our university together and together we can make a real impact on society. Additionally, ECDA provides us with an internal network of researchers interested in this field, that is helpful for new applications for grants and collaboration in the convergence".

9/ Partnerships

Government, industry, and academic organisations all have different principles, models, and aims. Consequently, ECDA 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 a partner of ECDA brings several benefits:

> You can emerge yourself in state-of-the-art knowledge of AI, data, and digitization.
> You can engage with our student community, for recruitment purposes and for a fresh out of the box perspective.
> You can participate in ongoing and new research. Additionally, you can collaborate with passionate scientists, who are interested and experienced in a wide range of data science, data visualization, and data engineering in several application domains.
> You can use our skills and expertise for seminars, workshops, and training needs – in open programs or tailored to your specific organizational context.
> You become part of an ecosystem with a wide range of public and private partners.
> You have access to the Erasmus Data Collaboratory as a physical space for meetings, training, and co-creation events.
> You can join innovation challenges in ECDA's Data Sandbox environment, using a safe, secure and neutral environment for data sharing, analyses, and POC development, to identify business opportunities and realising societal impact with the engagement of student teams and top Faculty.

A partnership with ECDA is not a one-way street. We expect our partners to help us to enhance our academic curriculum with real-life business challenges and data sets; collaborate on building various repositories with use cases, sets of metadata, and algorithms; and contribute know-how and expertise for research and education purposes. Ideally, our activities contribute in some way to creating societal impact using the United Nations Sustainable Development Goals as our guiding framework.

Enriching knowledge is our core business, sharing knowledge is our motivation and valorising knowledge is our challenge. By becoming a partner of ECDA you will be joining our ecosystem.

Partnerships come in various forms. We distinguish four types of partnerships:

1. **AFFILIATE PARTNER** become part of ECDA's ecosystem and explore the opportunities of a broader partnership. Open to start-ups and not-for-profit organizations.

2. **ASSOCIATE PARTNER** a partnership that enjoys several benefits and a selected set of features from the full partnership.

3. **FULL PARTNER** a partnership where you can enjoy the full range of benefits of partner services, including annual participation with a team in ECDA's leadership challenge with data analytics program, the best value for your money.

4. **TECH PARTNERS** a partnership for technology partners that offer their technologies, datasets, algorithms, and expertise for use in education and research. A tech partnership is usually based on in-kind contributions – combined with one of the paid ECDA partnerships (at least an affiliate partnership).

For more information about partnering with us, please find more details on our website:
https://ecda.eur.nl/partnerships/

ECDA ecosystem
a snapshot

PARTNERSHIP ENGAGEMENT OPPORTUNITIES

A In touch with talent

- Posting vacancys on Jobteaser platform
- Hosting company presentations in Bachelor and/or Master programmes
- Facilitate in-company workshops
- Provide on-campus presence during recruitment days and/or master fair

B Education and training

- C-suite executive briefings
- Team training "Leadership challenges with data and analytics"
- Member rates on Open Programmes
- Member rates on in-company training, workshops and bootcamps

C Co-creation and open innovation

- Pressure cooker ideation with students
- One week challenge
- Deep dive analytics challenge
- Customized corporate challenge
- Sandbox environment

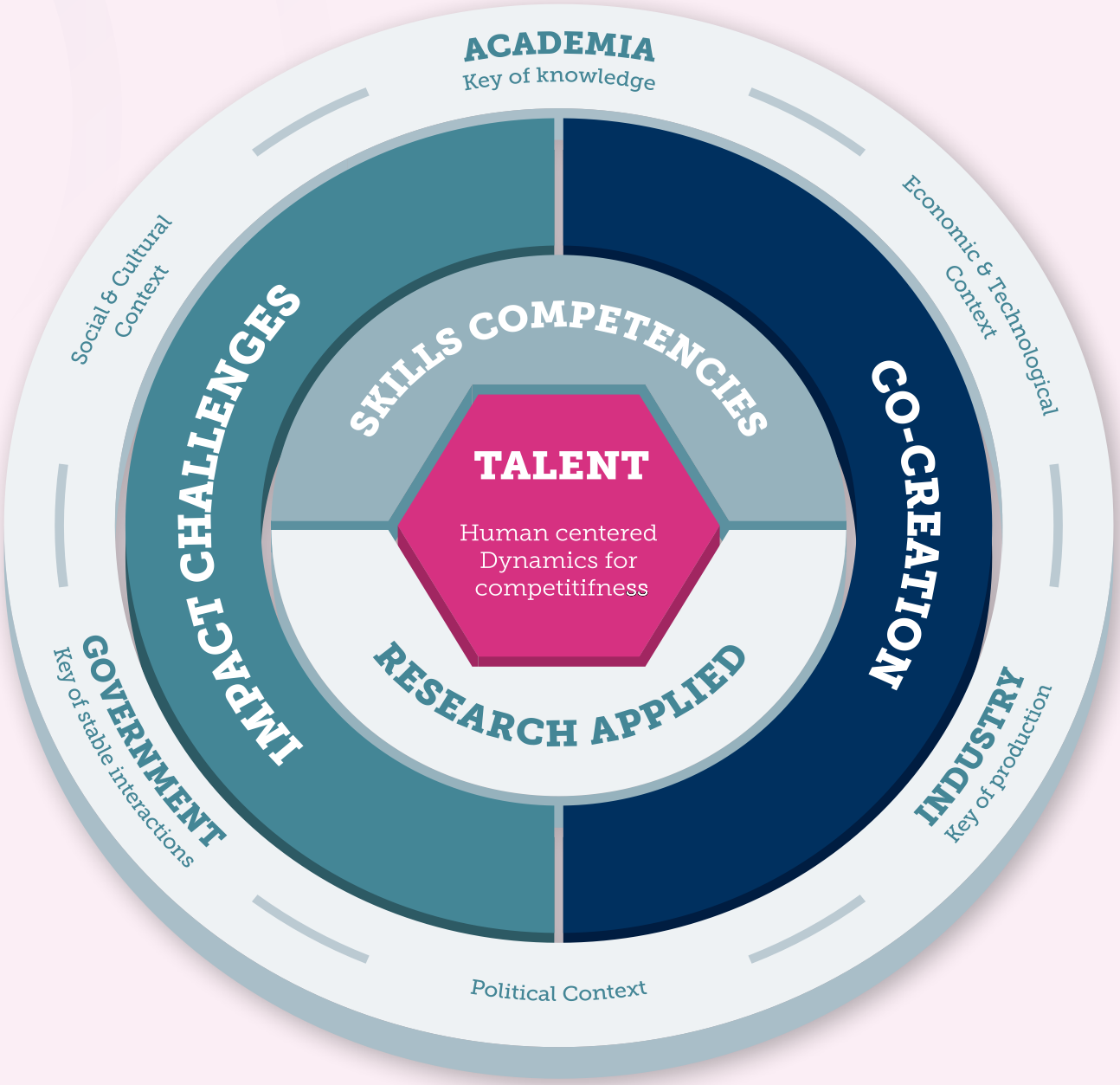
D Research engagements

- Linking to master thesis projects
- Student research consultancy project
- Member rates on contract research
- Member rates for PhD sponsorship

E Ecosystem & thought leadership

- Access to XP spotlight sessions
- Participation in annual data summit
- Expert advice from academic directors
- Quarterly community meetups at ECDA
- "Learn from best" company visits for C-level

ECDA Human Centered Collaboration Approach



Testimonials

SURF

As part of the Acceleration Plan, SURF consists of 39 universities of applied science working together on opportunities within digital transformation offered in higher education in the Netherlands. As the Zone Education data, we created various tools for data scientists and engineers, researchers and business analysts, and policy advisors and teachers, to work on education data themselves. But we quickly realized that more and better tools were not enough!

To move from data to insights, transformation in education data will require more change agents and leaders. In doing so, we started to look for a partner that could help us – or better – help these protentional leaders, to create more impact. Along this journey is where we met Gerrit Schipper and ECDA. Their leadership challenge was the right tool for our goal. What appealed to us was the holistic approach and the fact that groups work on real-life case studies. Together with ECDA we set up leadership challenges specific to the Higher Ed sector and added an executive track.

The reason for the latter was simple: "the grass is greener where you water it!" Consequently, the attention our executives give to the cases their teams work on reflects their institutions and will accelerate other initiatives by strengthening data literacy within Higher Ed.

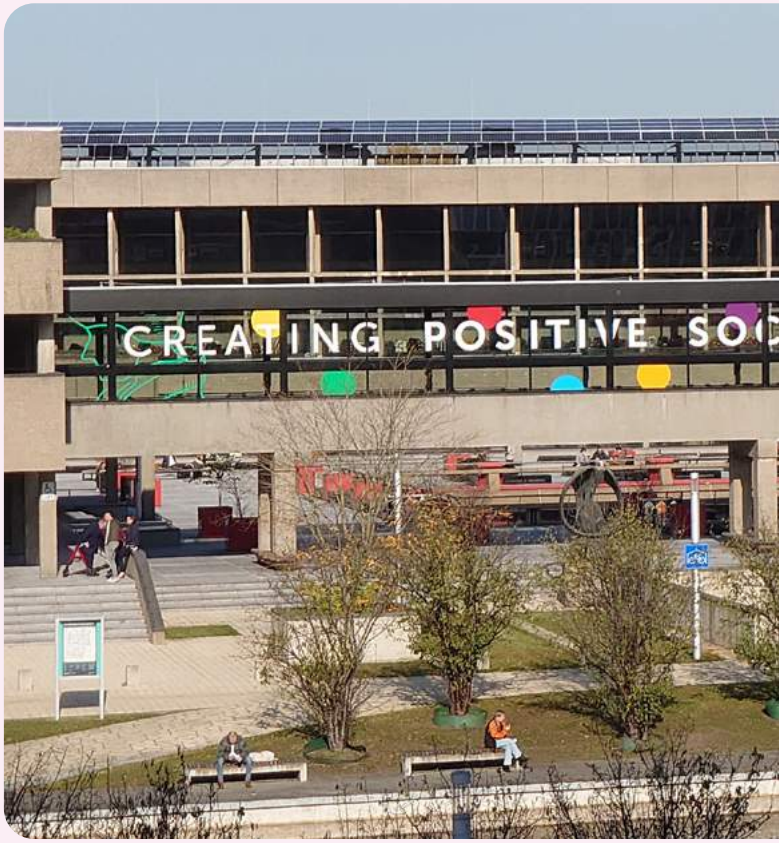
Together with ECDA and SURF, we clearly struck a chord...the first edition of the leadership challenge has 39 participants from 13 different institutions!

Bram Enning and Dominique Campman
Zone Education Data/Acceleration Plan

City of Rotterdam

The relationship between ECDA, the Municipality of Rotterdam, and the city at large is proving fundamental for the city's increasing strategic urban innovation and digitalization agenda. The impact of the next waves of digitalisation is changing the city faster than previously and taking digitalisation beyond the realm of efficiencies. In preparation for our city's digital future, ECDA is there at the very top of our list of organisations to engage – now, tomorrow, and for a long time to come. To jointly expand partnerships, transforming our own bilateral relationship into a growing innovation ecosystem – such as the partnership with Amazon Web Services and Thunderbird School of Global Management – serves as a great illustration of how we are collectively deepening the relationship.

Bas Boorsma
Chief Digital Officer of the City of Rotterdam



Philips

"AI, data science can make a world of difference in this very complex world of healthcare... I'm convinced ECDA has a very important mission to play."

Frans van Houten
CEO Philips

Erasmus Tech Community - Student Association

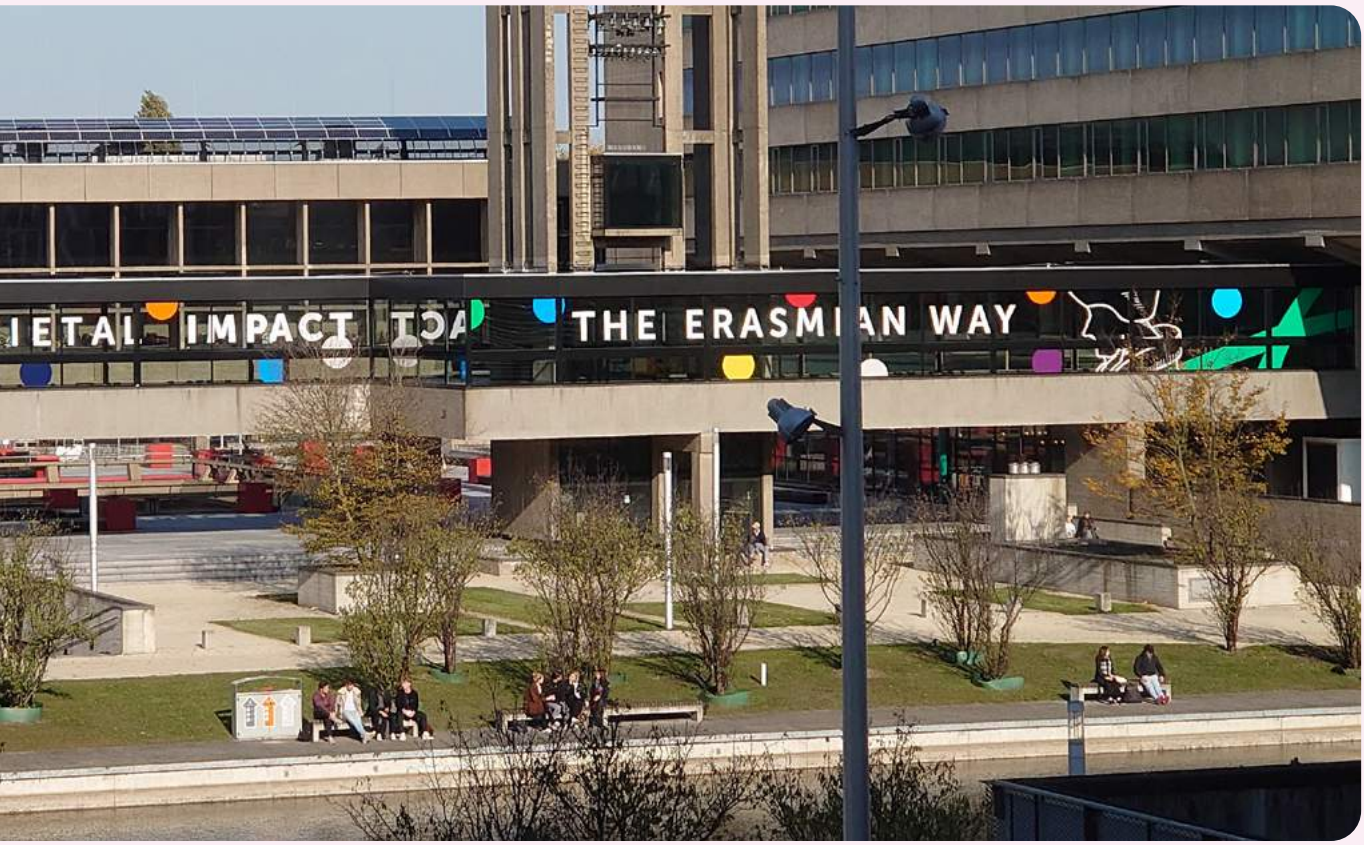
The Erasmus Center for Data Analytics allowed me as a student to learn about the usefulness of data and the importance of interdisciplinarity for a sustainable and positive world.
I am grateful for ECDA, as their events have provided me with information from experts in the field and allowed me to network with like-minded individuals.

Santiago Ontaneda Malaga
EUR student & President of ETC

AWS

AWS highly values ECDA'S mission to prepare society for a data-driven future and welcomes its collaborative approach to achieving this mission. We are keen to bring in our expertise to help ECDA and its partners achieve meaningful innovation and get more value from data. As a first initiative, we supported ECDA with the organization of their summer school (July 2021), bringing our technology into the hands of the students and helping them to successfully apply it. We look forward to expanding and deepening our partnership with ECDA in the near future.

Ruth de Vulder
Education & Research Lead BENELUX



10/ Meet the team

Academic Directors

Prof. Ting Li

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

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

Prof. Wolfgang Ketter is Professor of Next Generation Information Systems at RSM and Chaired Professor at the University of Cologne, Cologne, 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

Dr. Yashar Ghiassi-Farrokhfal is Assistant Professor Department at RSM and expert on energy systems, electricity markets, storage systems, market design and analysis, and city-wide energy planning.

Dr. Dion Bongaerts

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 Sovreignty4Europe 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

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

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

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 that has been 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

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 Rooderkerk

Dr. Robert Rooderkerk is Associate Professor of Operations Management at RSM, ECDA Lab Director of the Retail Analytics expertise area, and Academic Director of RSM's MScBA Business Analytics & Management. His research addresses retail operations challenges on the marketing-operations interface, with an emphasis on omnichannel retail. He is particularly interested in research questions related to assortment, product lines, and fulfilment. His empirical work integrates insights from psychology and consumer behaviour with advanced analytics that include Bayesian statistics, econometrics and operations research. His conceptual work focuses on how new technologies, data sources, advanced analytics, and business models are reshaping the global retail landscape.

Prof. Stefano Puntoni

Prof. Stefano Puntoni is Professor of Marketing at RSM. He leads the Psychology of AI lab which 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

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 marketeers, designers, thinktanks, 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.

Prof. Rob Zuidwijk

Prof. Rob Zuidwijk is Professor of Global Supply Chains and Ports at RSM. His fields of expertise include co-ordination for sustainable global supply chains, synchromodal transport networks and inter-organisational systems in logistics. Professor Zuidwijk is also Captain of Science of the Topsector Logistics in the Netherlands and ambassador of Smart Logistics of SmartPort, a collaborative arrangement with the port community of Rotterdam.

Prof. Antoinette de Bont

Prof. Antoinette de Bont is Professor of Health Care Governance at the Erasmus School of Health Policy & Management. Her fields of expertise include national and international policy priorities, the transition of health care and the use of big data to increase efficiency in health care. Professor de Bont is also academic lead for the convergence Health & Technology and the EUR initiative Augmented Humanities with AI.

Dr. Anne Marie Weggelaar-Jansen

Dr. Anne Marie Weggelaar-Jansen is an associate professor Change Management and Innovation at the Erasmus School of Health Policy & Management. Her research interests are: big data, technological innovation (e.g. e-health, patient portals, robotica) and nurse craftmanship (e.g. positive work environment, leadership, task redistribution). Her interest on the consequences of big data for patient and professional relationship was sparked when she was work package leader in one of the largest funded big data in healthcare projects: Big Medilytics: the big-data-for-medical-analytics project (Horizon2020 EU funding). Since July 2021, she is the Academic Director of the ECDA Expert Practice 'Health Management and AI'.

Prof. Moniek Buijzen

Prof. Moniek Buijzen is Professor of Communication and Behavioural Change at the Erasmus School of Social and Behavioural Sciences . Her fields of expertise include benefits of digital technology in a healthy and sustainable lifestyle, dissemination of health campaigns for youth, and peer influencers in online social networks. Professor Buijzen also leads the NWO-funded SocialMovez project.

Dr. Jason Pridmore

Dr. Jason Pridmore is Associate Professor and Vice Dean Education at the Erasmus School of History, Culture and Communication (ESHCC). His fields of expertise include digital identification, security issues, practical approaches to data protection, surveillance and the use of new and social media and consumer data.

Dr. Bernold Nieuwesteeg

Dr. Bernold Nieuwesteeg is Director at the Centre for the Law and Economics of Cyber Security at the Erasmus School of law. His fields of expertise include cybersecurity, systems engineering and policy. Dr. Nieuwesteeg is also co-founder of Cross-Over B.V.

Prof. Yvonne van Everdingen

Prof. Yvonne van Everdingen Is Professor of Marketing and Innovation at RSM. Her fields of expertise include marketing of new products, use of new technologies such as VR and AR for the development and launch of new products, and consumer adoption of sustainable new products. She is also a member of the EUR Diversity Advisory Board, member of the Special Interest Group Virtual Reality at the Erasmus Behavioural Lab, member of the Profgroep Onderwijs of the Expertise Center voor Marketing Insights, Onderzoek en Analytics, and the chair of the Jury for the MOAward Insights Scientist of the Year.

Dr. Luca Berchicci

Dr. Luca Berchicci is Associate Professor of Entrepreneurship and New Business Venturing at RSM. His fields of expertise include decision making in problem solving, firms' capabilities building, (green) innovation and business models, and machine learning algorithms for model uncertainty mapping. His primary interest lies at the intersection of strategy, entrepreneurship and innovation.

Prof. Dennis Fok

Prof. Dennis Fok is Professor of Econometrics and Data at the Erasmus School of Economics (ESE). His fields of expertise include econometrics, data science, machine learning, marketing, and high dimensional data. Professor Fok also advises companies and other organisations on research-related issues. He is the Director of the Econometric Institute at EUR, and the Academic Director of ESE's MSc in Business Analytics & Quantitative Marketing.

Dr. Aurélie Lemmens

Dr. Aurélie Lemmens is Associate Professor of Marketing Management at RSM. Her fields of expertise include customer analytics, machine learning, causal interference, and optimisation of managerial decisions such as customer targeting. She is the author of the recently developed ProfitBoost algorithm to optimise customer retention campaigns. Dr. Lemmens was awarded several prestigious grants, including a Marie Curie grant from the European Research Council, and Veni and Vidi grants from NWO.

Prof. Bas Donkers

Prof. Bas Donkers is Professor of Marketing Research at the Erasmus School of Economics. His fields of expertise include consumer decision-making, behavioural economics, quantitative analysis, and quantitative market research techniques.

Prof. Pearl Dykstra

Prof. Pearl Dykstra is professor of Empirical Sociology at Erasmus University Rotterdam. She is the Scientific Director of ODISSEI, the Open Data Infrastructure for Social Science and Economic Innovations in the Netherlands, which received Netherlands Roadmap for Large-scale Scientific Infrastructure funding in 2020. In 2015 she was appointed as member of the group of European Commission Chief Scientific Advisors, and served as its Deputy Chair from 2016 to 2020. She currently holds the position of invited expert to the European Commission. She is an elected member and previous Vice-President of the Netherlands Royal Academy of Arts and Sciences (KNAW), fellow of the Gerontological Society of America, and elected member of Academia Europaea. She received an ERC Advanced Investigator Grant in 2012 for the research project "Families in context", which focuses on the ways in which policy, economic, and cultural contexts structure interdependence in families.

Prof. Wiro Niessen

Prof. Wiro Niessen is full professor in Biomedical Image Analysis and Machine Learning at Erasmus MC, Rotterdam where he leads the Biomedical Imaging Group Rotterdam (www.bigr.nl) and at the Faculty of Applied Sciences of Delft University of Technology. He is founder and scientific lead of Quantib BV. His interest is in the development, validation and implementation of quantitative image analysis methods in clinical practice and biomedical research, in linking imaging to genetics data, radio(geno)mics, and image guided interventions.

Dr. Wouter Jacobs

Dr. Wouter Jacobs is the academic director of the Leadership in Commodity Trade and Supply Networks program at Erasmus University Rotterdam, the Netherlands. Wouter initiated and developed this program in close cooperation with industry partners in the Netherlands and Singapore. Wouter is a member of the advisory council of J.P. Morgan Centre for Commodities at the CU Denver business school of the University of Colorado. As senior fellow at the Erasmus Centre for Urban Port and Transport Economics (Erasmus UPT) Wouter focusses on applied research and strategic policy interventions regarding port and urban economics.

Prof. Dr. Gabriele Jacobs

Prof. Gabriele Jacobs is Professor of Organisational Behaviour and Culture at the Erasmus School of Social and Behavioral Sciences (ESSB) and Dean of the Erasmus University College (EUC). Her research interests include: Organizational change, justice and identity, leadership, international management, civic engagement, co-creation, methodology. Gabriele Jacobs worked from 2000 to 2019 at the Rotterdam School of Management / Erasmus University Rotterdam (RSM) and acted from 2016 to 2019 as Academic Director of the International Business Administration Bachelor Programme (IBA).

Dr. Esther Rozendaal

Dr. Esther Rozendaal is associate professor of Communication and Behavioural Change and member of the Movez LabOpent extern, a research team with a shared interest in young people, digital media, and wellbeing. In 2020, she was awarded a prestigious Vidi grant from the Dutch Research Council (NWO) for her project 'Empowering children to behave safely online: An integrated developmental-behavioral approach to digital media literacy'.

Prof. Claartje ter Hoeven

Prof. Claartje ter Hoeven is the scientific director and coordinator of the interdisciplinary master and research program 'Organizational Dynamics in the Digital Society'.
Her scholarly interests encompass constant connectivity, digital labor, algorithmic management, and worker's well-being. Currently, her teaching and research focuses on how digital technologies reconfigure work for different people in different types of work.

Core Team

Gerrit Schipper

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

Dr. Marcel van Oosterhout is Associate 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, sustainable energy and digital capabilities. 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.

Maaike Hang

Maaike Hang is Partner Engagement Manager at ECDA. She completed a Research MA in Asian Studies, and LLB in applied sciences. She is an experienced account manager and project manager, and is involved in partner engagement management with ECDA's corporate partners.

Rajarshi Chakraborty

Rajarshi Chakraborty is Manager Data Collaboratory. He completed an MSc in Business Information Management, is founder of Erasmus Tech Community, and co-host of the *Speed Change Repeat* podcast.

Andrea Marchena Fernández

Andrea Marchena Fernández is the Marketing Assistant at ECDA. Graduated from Bachelor's in International Business Administration and is now pursuing a Master's in Marketing Management at RSM. Interested in data analytics and consumer behavior.

Jeanne Labergue

Jeanne Labergue is the Operations Assistant at ECDA. She is currently studying RSM's Master in Strategic Management after graduating from the International Business Administration Bachelor's. Interests in data mainly lays in its impact on society and its regulations.

Colophon
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Erasmus Centre for Data Analytics

Erasmus Centre for Data Analytics
Erasmus University Rotterdam
Burgemeester Oudlaan 50
3062 PA Rotterdam
The Netherlands
+31 10 408 23 15

eur.nl/ecda

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