

Maastricht University 42nd Dies Natalis, 26 January 2018

Welcome ladies and gentlemen, distinguished guests – in particular the mayor of Maastricht, Ms Annemarie Penn te Strake; the members of our Supervisory Board, especially our new chair Ms Annelies van der Pauw; and the president of the Board of Directors of the Maastricht academic hospital, Professor Marja van Dieijen-Visser – and students, alumni and, last but not least, members of staff: I'd like to extend to you all a heartfelt welcome to this academic ceremony, during which we will celebrate our university's 42nd anniversary.

Allow me to say a few words on the theme of today's anniversary: the future of a data-driven society. I do so as the rector of this university, but at the same time as a digital migrant. For I do not belong to the generation sometimes referred to as 'digital natives'; those born and raised in the digital age. That said, as I understand from our students, not every 20-year-old is automatically a digital native either.

What about you? Do you know exactly what *blockchain* means? What the current state of affairs is in machine learning? What potential big data may have in your field of research? When it comes to these and related developments, we're all faced today with provocative and sometimes disconcerting claims: "In the coming years robots are set to destroy millions of jobs." And: "Big data increases inequality and threatens democracy."

The Association of Universities in the Netherlands (VSNU) keeps it a bit more general. I quote: "It is already clear that far-reaching digitalisation will radically change almost every aspect of society, not only in the Netherlands but worldwide." End quote. The VSNU advocates intensive collaboration, in every shape and form, to ensure that the Netherlands can take a leading position in the digitalising world. The Province of Limburg is also developing a vision on the digital society, and we intend to cooperate with them on this theme, as we do in many initiatives. In our view, modern partnerships are not just about

grants and subsidies, but rather about a shared interest in this beautiful region and its inhabitants, of which our students and staff are very happy to be part.

Because at UM, too, we are paying close attention to the developments in digitalisation. How can we adapt our study programmes to the 'nxt' economy? Do we need to develop new programmes in certain disciplines? Exactly how disruptive will digitalisation be for education as we know and provide it today? And, crucially for UM, how can we modernise Problem-Based Learning without sacrificing those features of it that appeal to students?

There will always be students who prefer to learn from behind a screen or stay anonymous online. But ... there will also always be students who want to learn in an interactive way, together with other students from all over the world. We want Maastricht to be *the* place for cooperative, contextualised, constructive and student-centred learning in a truly international classroom. After all, more and more educational research demonstrates that students learn better in settings like this.

But to return to data sciences. There's no two ways about it: data sciences is not purely the prerogative of the sciences. There's the obvious example of personalised models, created through machine learning, which can predict cancer outcomes after radiotherapy – something researchers from our Faculty of Health, Medicine and Life Sciences are working hard on at the moment. But our inner city faculties can and should embrace data sciences too. Take the legal arena, where people are investigating and identifying all manner of digital possibilities – including at our law faculty and the Faculty of Arts and Social Sciences.

In my own research field, law and victimology, the work of Professor Timo Honkela stands out. He is professor of Research on Digital Information at the University of Helsinki and, with the help of machine learning, is working on a genuine Peace Machine. His hypothesis is that international conflicts can come about purely because we don't all give the same meaning to the same word.

But if machines could analyse everyone's way of using language, it would be easy to detect conflicts in meaning, which would reduce misunderstandings and in turn ultimately reduce conflict. I would love to live long enough to see that, but I'm afraid a few more scientific breakthroughs are needed; Professor Honkela estimates the project will take a hundred years or so.

Apart from the fact that every discipline is already or should be working with data sciences, in the coming years it will be important to forge links between fields. We on the Executive Board are convinced that we will not be able to do justice to society and the challenges it faces if every field addresses the opportunities, challenges and potential threats of digitalisation within the confines of its own disciplinary silo. Just as we believe that to successfully apply new knowledge and technology, there will always be a need for people.

And as we on the Executive Board and in the team of deans are also very aware of the importance of data science, we are extremely pleased and proud that the Institute for Data Science, headed by Professor Michel Dumontier, was officially launched yesterday with a symposium on the same theme we're addressing today. I for one am very much looking forward to the interfaculty data-science community that Professor Dumontier intends to build here in order to foster interaction between researchers from all disciplines.

But however important data science is, this does not do away with the need for human brainpower. Or, as the psychologist Gary Marcus from New York University recently put it, "Perception is more than categorisation and intelligence is more than perception. Intelligence also includes language, reasoning, making analogies, planning and common sense." As a psychologist interested in artificial intelligence, he is a good example of how cross-overs between disciplines can bring a discussion to a higher level. Because how far can you really go if artificial intelligence is dominated by people who are good at maths, but know little about the workings of human intelligence?

Take the book *Weapons of Math Destruction* by the mathematician and data scientist Cathy O'Neil, in which she warns about algorithms that reinforce prejudices. She makes clear that mathematics is not the near-holy, neutral power it is often made out to be. All these are interesting, stimulating points of view, which should also inspire and encourage our academic community.

According to the Erasmus Centre for Business Innovation, only 25% of the success of an innovation can be explained by technological aspects, and 75% is the result of social innovation. The field of data sciences is of the utmost importance, but it will not render all human traits superfluous. At least not for the time being.

To expand on today's theme, I have asked two of our professors to deliver a Dies Lecture. They come from different disciplines and I have asked them to move from their academic perspectives towards a comprehensive, critical vision on the future of a data-driven society, and the challenges it entails. It is my pleasure to introduce Professor Sally Wyatt and Professor Michel Dumontier to take the stage and tackle these crucial questions. I have also asked the deans of their respective faculties, Professor Sophie Vanhoonacker and Professor Bernadette Jansma, to propose two recipients for honorary doctorates in the field of data science. They did not let me down! And we will return to that later in the ceremony. But now, back to our keynote lecturers.

Sally Wyatt is our professor of Digital Cultures in Development Technology and Society Studies at the Faculty of Arts and Social Sciences. She is also programme leader of the e-Humanities Group at the Royal Netherlands Academy of Arts and Sciences (KNAW) and director of the Netherlands Graduate Research School of Science, Technology and Modern Culture. Recently she initiated the development of a bachelor's degree on digital transformations.

Michel Dumontier is our distinguished professor of Data Science and head of the Institute for Data Science, which was launched yesterday. He is also a

technical lead for the FAIR data initiative (as in Findable, Accessible, Interoperable, Reusable) and scientific director of Bio2RDF, an open-source project to generate linked data for the life sciences. It is my pleasure to first give the floor to Michel Dumontier.