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Time for interdisciplinarity

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Welcome, ladies and gentlemen, to this celebration of Tilburg University's 91st anniversary. Welcome to the members of our supervisory board, mayors and former mayors, the kings' commissioner for the province of Noord-Brabant, your excellencies Bishop and Cardinal, representatives of Tilburg municipal council, representatives of regional, national and international corporate partners, alumni from the class of 1991, colleagues and students.

Ladies and gentlemen, if you happened to drive down here today, you will not have been surprised by the huge number of vans and lorries on the road, the large number of distribution centres and high and medium -tech manufacturing companies in our province. You may not be aware of this, but logistics operators and manufacturers are under huge pressure these days to streamline their business activities by combining forces.

To date, however, it has proved difficult to bring the various parties together to find a solution. It was against this background that Tilburg University devised a project called COMPOSE, in which our researchers are working together with the main industry association to design a digital platform that will make it easier for companies to find strategic partners.

One of the novelties about this project is the fact that it combines a wide range of expertise from different branches of the social sciences:

- social psychologists are contributing their expertise on how to encourage partnerships and on what sort of alliances typically work well and less well;
- lawyers are looking at different ways of organising partnerships and what sort of data companies are and are not allowed to share with each other;
- specialists in supply chain management are examining the pros and cons of joining forces;
- and econometrists are analysing the costs and benefits of collaboration, and how these can best be divided among the various partners.

Together, the COMPOSE team is building a digital platform that will enable companies – once they have filled in their profile and preferences – to be matched with potential partners. The end result will be greater efficiency and better performance. Thanks to interdisciplinarity.

On the 24th of January of this year, *The Guardian* ran an opinion piece headed 'The university of the future will be interdisciplinary'. It was written by Zahir Irani, the dean of management and law at the University of Bradford School of Management in the United Kingdom. He argued that traditional departmental structures are preventing research and education from evolving in a changing world. Rather than encouraging collaboration, these structures lead to rivalry and a struggle for resources and funding. Irani reckoned it was time for something new.

In fact, Irani was not referring to anything really new at all. The term 'interdisciplinarity' was first coined in a 1972 publication by the Organization for Economic Cooperation and Development, in which scholars from six countries claimed that scientific enterprise had become less effective due to disciplinary fragmentation, and that the right response was a countermovement for unifying knowledge.

Although the authors came from different professional backgrounds, they all agreed that (I quote) 'interdisciplinarity is a way of life, basically a mental outlook which combines curiosity with open-mindedness and a spirit of adventure and discovery. It is practised collectively in teams and it requires continuity between education and research' (end of quote).

In the mid-1990s and at the beginning of the 21st century, the debate on the transcendence of disciplinary research was fuelled by authors such as Gibbons and his colleagues, who advocated a shift from what they called 'mode 1 science' to 'mode 2 knowledge production'. Mode 1 science is all about trying to acquire more scientific knowledge by undertaking fundamental research. Mode 2 knowledge production, on the other hand, is about integrating scientific disciplines that, in their application, focus on real-life problems.

Twenty years later, in 2016, the League of European Research Universities pointed to interdisciplinary collaboration as a powerful driver of knowledge creation, scientific progress and innovation. The League maintained that universities have a duty to work along interdisciplinary lines.

In other words, the idea that research should be more interdisciplinary has become commonplace in recent years. The ultimate argument is that, if science is to be able to help solve the urgent, 'wicked' problems, interdisciplinary collaboration is a prerequisite. This is backed up by four lines of reasoning:

1. first, the issues we need to address are broad, complex and multi-faceted;
2. second, we need to exploit disciplinary relationships and make greater use of contacts with parties outside the academic community;
3. third, the problems that need solving lie outside the scope of any single discipline; and
4. fourth, we need to achieve a 'unity of knowledge' on a large or small scale.

This latter, integrative aspect of interdisciplinarity is essential. Criminology, for example, may be regarded as an interdisciplinary behavioural science to which sociologists, psychologists, anthropologists and lawyers contribute. Other examples are Health and Society; Environmental Sciences; Future Planet Studies; Urban Studies; Earth, Life & Climate; Digital Life.

Outside the universities themselves, the bodies funding and commissioning academic research are also focusing more and more on interdisciplinary collaboration in setting their conditions for research proposals. Research councils such as the Netherlands Organisation for Scientific Research (the NWO) and the European Research Council are increasingly willing to invest in broader, innovative and socially relevant research projects.

Here in the Netherlands, The Royal Netherlands Academy of Arts and Sciences (the KNAW) has been actively working on interdisciplinarity since 2006. Earlier this year, the KNAW's Young Academy presented an advisory report claiming that there was every reason for breaking down barriers in scientific research.

The claim was that:

- interdisciplinary research contributes to scientific innovation and results by broadening and deepening individual disciplines;
- it creates knowledge that transcends disciplines;
- it has proved to be indispensable for solving complex social issues.

These standpoints on interdisciplinarity are not without their critics, however. Criticisms have been voiced in a range of publications, including by Jerry A. Jacobs in a 2013 book with the self-explanatory title of *In Defense of Disciplines*. Jacobs resists the image of 'disciplinary silos' that need to be demolished, observing that the exchange of ideas and research findings among disciplines generally goes smoothly. He doubts whether reorganising university structures will generate added value and argues that promoting integrated courses at a university is as difficult as organising interdisciplinary research. He also claims that disciplinary specialisation is a reaction, albeit not a perfect one, to the need to distinguish intellectual domains.

Another frequently heard counterargument is that the movement towards interdisciplinarity comes at the expense of academic robustness and sharpness. The doom scenario here is that academics will end up as jacks-of-all-trades, neglecting their original disciplines which they have studied with great pain and effort. This will ultimately lead to 'undisciplined' academic practice or even chaos, both of which are at odds with academic standards.

While we clearly need to take these criticisms and reservations seriously, my own belief is that these images are not an accurate reflection of reality. The literature regularly states that disciplines are not the same as departments and that departments are not disciplines. In other words, departmental structures do not necessarily have to be demolished in order to promote interdisciplinarity.

At this point I also would like to stress the role of something known as 'team science'. Interdisciplinary research is a mode of research carried out by teams of individuals bringing together information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialist knowledge. The object is to advance a fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or field of research. As the Dutch pop group De Dijk sang, 'I can't do it alone'.

And I am proud to say that there are plenty of examples of successful team science efforts here in Tilburg: institutes such as TILEC, TILT, and Intervict, as well as projects performed as part of our Impact Programme. Alongside the need to form strong teams, money is of course another issue. There must be sufficient resources to give departments a kind of 'discipline-based remuneration', plus payments to cover unexpected expenses.

We also need to design our HR policy in such a way that interdisciplinary activities are stimulated and valued, also in terms of career prospects. The reality is that there are no widely accepted criteria for evaluating the success of collaborative projects and that traditional, monodisciplinary academic standards are often inadequate, especially if we wish to take account of

impacts outside the academic context. Similarly, the vast majority of peer reviews do not stray beyond the borders of a single discipline.

Ladies and gentlemen, academics today are expected to collaborate between disciplines. But collaboration in itself means much more than simply getting together and then doing your own thing, albeit as part of a team. Collaboration in this sense is all about understanding, appreciating and valuing. It's about an ability to look at things from someone else's perspective and to set aside the traditions, customs and experiences that together form your own operating framework, and instead to transport your own expertise to an entirely new setting. This requires new working methods and new grant instruments for encouraging interdisciplinary projects.

Ladies and gentlemen, as you may know, our Strategy for 2018–2021 is entitled 'Connecting to Advance Society'. This is a mission we can accomplish only with the aid of interdisciplinarity.

Thank you.

This speech is based largely on an essay by Ton Wilthagen, Emile Aarts, and Peggy Valcke entitled 'A Time for Interdisciplinarity' (Tilburg, 2018).