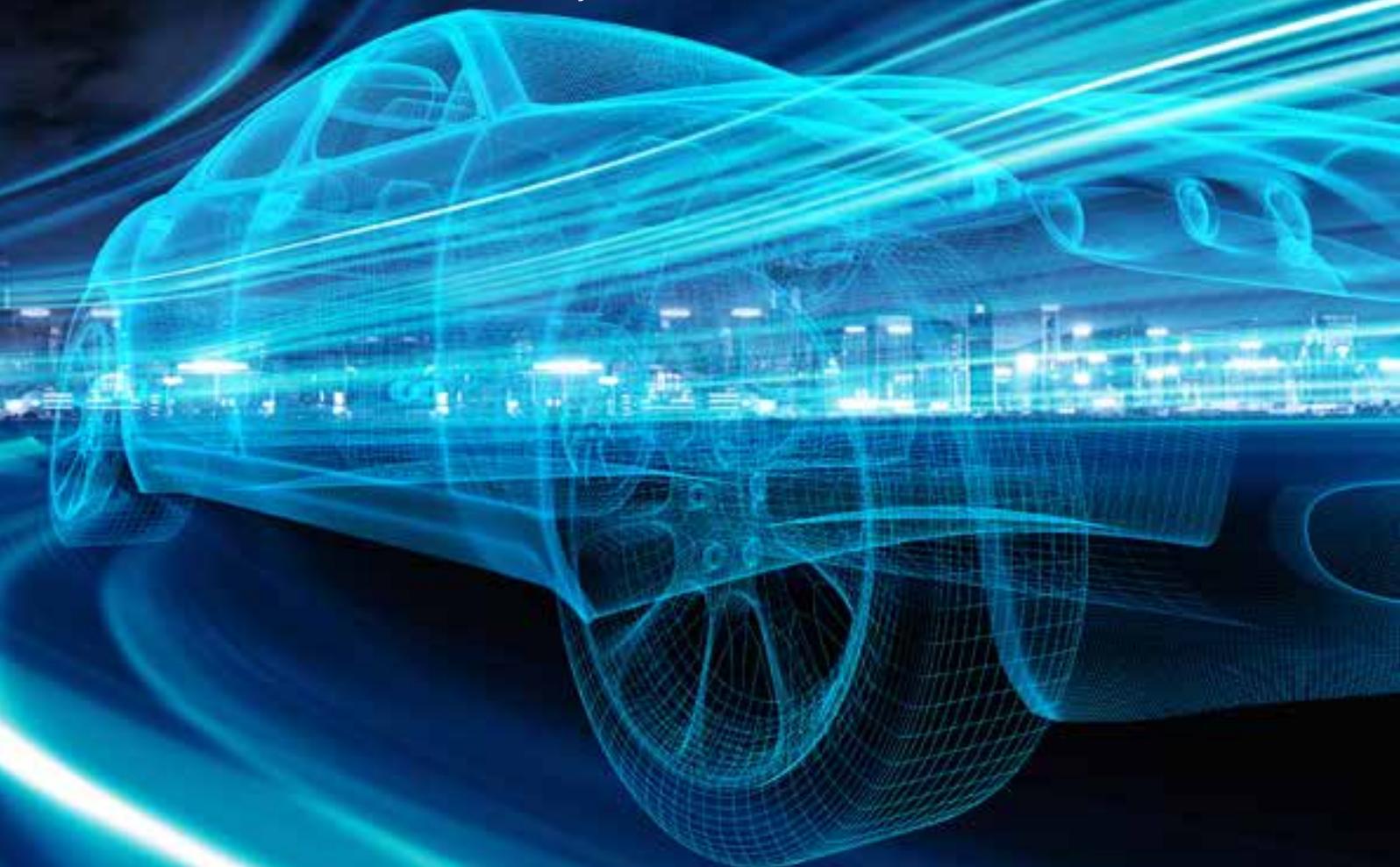


# AUTOMATED DRIVING: SAFER AND MORE EFFICIENT DRIVING IN THE FUTURE

by DANIEL WATZENIG



***Daniel Watzenig on the current state of the art along with the research, technology and engineering challenges of automated driving in Europe anno 2015***

About a year and a half ago, Daniel Watzenig (more on Daniel in the Baton Blues column) came up with the idea of inviting various people from industry and academia to contribute their thoughts to what is quickly becoming an increasingly prominent topic: automated driving. The book which he has co-edited with Martin Horn – *Automated Driving: Safer and More Efficient Driving in the Future*<sup>1</sup> – is now about to be published by Springer in May or June this year. We put a few questions to him.

***What was the motivation behind this book?***

"Being very much involved in the field, I wanted to find out what the state of the art was in terms of automated driving. Where is industry and where is research at this point in time? Where are we heading and what are the prospects for this revolution in road traffic and transport? The book is geared almost exclusively to presenting a technical overview, so non-technological aspects like legislation, public acceptance and liability are not considered, except where those are directly relevant.

"Until the end of the last century, automated driving was something confined to the realms of science fiction but the technology has caught up to such an extent that it is already becoming science fact. The main topics of the book include advanced control, cognitive data processing, high-performance computing, functional safety, and comprehensive validation. These topics can be seen as the technological building bricks to drive forward automated driving. The current state of the art of automated vehicle research, development and innovation is presented and the book also addresses industry-driven roadmaps for major new technology advances as well as collaborative European initiatives supporting the evolution of automated driving."

***To whom will this book appeal?***

"The book will certainly be of interest to academics and researchers within engineering, graduate students, automotive engineers at OEMs and suppliers, ICT and software engineers, managers and other decision-

makers. The book contains the views of carmakers from BMW to Volvo and university research centres from Aachen to Stockholm. Each chapter contains both perspectives. The 22 chapters present a snapshot of the state of the art in 2015. One specific chapter is devoted to the automated driving related projects in Europe, and ARTEMIS is very well represented in that respect, being at the forefront of a number of initiatives here, such as SafeTRANS<sup>2</sup>. Another key project highlighted is the ITS (Intelligent Transport Systems) corridor from Rotterdam to Vienna because this shows how important the infrastructure is in the whole automated driving picture, especially when you consider how automated vehicles rely on data coming in from the outside, whether from roadside equipment, other vehicles or the cloud."

***Is there sufficient R&D in Europe in this domain of automated driving? And is Europe still competing with Asia or the US in this domain?***

"It's quite fascinating to see that, for example, you have Renault and Nissan engaged in collaboration and there are more examples of Euro-Asian partnerships in all kinds of automotive areas. So in some respects that leaves the US as the main competitor if you like. Europe tends to be more conservative in its R&D whereas the US has a get-up-and-go attitude, with caution thrown a little bit to the wind. In part, the complexity of legislation and regulation in Europe that manufacturers have to negotiate does mean that developments take a little longer to take hold and flourish. But the engineering is both strong and thorough so that when a technological 'extra' does come onto the market, be it German, French, Swedish or other manufacturers, it will have had to prove itself according to the most rigorous requirements. What this says about the state of R&D in the domain of automated driving, therefore, is that when R&D results actually go into practice, they will have passed the most stringent demands. In fact, I would go so far as to say that our expertise in Europe is so good and so renowned that there might even be the danger of a brain drain west to carmakers in the US."



*Daniel Watzenig*

***How do you think the public will take to automated driving?***

"While this is not really the focus of the book, it is a relevant, even tough question to answer. We can solve the technical questions but with security and privacy top of the mind, these are issues that won't go away and have to be dealt with, whether by legislation, a shift in attitude, culture ... No, it's not an easy one. We have to convince the user that automated driving is about improving safety and comfort, to give the driver confidence and relieve driving workload and stress. Automated driving has the potential to drastically reduce road fatalities – there are already driver assistance systems like LDW (lane departure warning) or ACC (adaptive cruise control) that are already making driving safer and less stressful. But, of course, driving is just as emotional an activity as it is rational. You want to get from A to B safely and comfortably but you also want to 'feel' the driving experience. I think that firstly the 'acceptance' will have to be gained in a structured or controlled environment before automated driving finds its place in the mixed vehicle/infrastructure environment. But I think that in the future our children's children are likely to know nothing other than the automated driving environment."

<sup>1</sup> ISBN 978-3-319-31893-6

<sup>2</sup> <http://www.safetrans-de.org/>